

Catalog

Albany College of Pharmacy and Health Sciences



EST. 1881

Albany College of Pharmacy
AND HEALTH SCIENCES

2011-12

Mission Statement

The Albany College of Pharmacy and Health Sciences is committed to the advancement of health care through its offering of nationally acclaimed undergraduate and graduate education, post-graduate training programs and research in pharmacy, pharmaceutical sciences, and health sciences. The College will continue its strong advocacy for lifelong intellectual and professional growth by providing a strong foundation in humanities and the basic, pharmaceutical, clinical and social sciences within a culture that promotes innovation, service, and excellence among our students, faculty, staff and alumni.

Vision Statement

The College, in conjunction with local, national and international collaborators, will be recognized as a pre-eminent educational institution in pharmacy, pharmaceutical sciences and the health sciences, engaged in groundbreaking research in drug discovery, disease state management, and health outcomes.

Core Values

Institutional Accountability and Integrity, Fiscal Responsibility and Growth, Academic Excellence and Freedom, Individual Respect and Collegiality, Relevant Research and Scholarly Activities, Institutional Fairness and Diversity, Commitment to Professionalism and Ethics.



Albany College of Pharmacy
AND HEALTH SCIENCES

2011-12 Catalog

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Albany College of Pharmacy and Health Sciences, founded in 1881, is part of Union University along with:

- **Union College, Founded 1795**
- **Albany Medical College, Founded 1839**
- **Albany Law School, Founded 1851**
- **Dudley Observatory, Founded 1852**
- **The Graduate College of Union University, Founded 2003**

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WELCOME FROM THE PRESIDENT'S OFFICE

On behalf of the faculty, staff and administration, I would like to extend our warmest greetings and welcome you to Albany College of Pharmacy and Health Sciences.

Founded in 1881, ACPHS is steeped in tradition, yet always looking to the future. This tradition continues today through a diversity of degree programs designed to help you excel in a range of settings, such as pharmacies, hospitals, laboratories and government agencies. Each of our programs also offers excellent preparation for graduate or professional school. Additionally, following the opening of our Vermont campus last year, the College continues to enhance and expand our facilities both there and in Albany.

Our primary goal continues to be our commitment to the success of every student. We are dedicated to supporting your efforts to explore, determine, and reach your lifetime goals. Our talented and dedicated faculty, staff and administration work hard to provide you with an enriching, rewarding, productive and safe learning environment. These individuals are committed to your success and to helping you achieve your full potential.

I encourage you to take advantage of all that the College has to offer, not only in the classroom, but also through extra-curricular activities. Professional organizations, student clubs, sports and volunteer and service opportunities available on campus provide an additional form of education that will undoubtedly enhance your overall experience at the College.

In our more than 125 years of service to the community, over 7000 students have passed through our doors and gone on to enjoy successful lives and careers. We are proud to have been a part of their journey, just as we are excited to be a part of yours.

I look forward to hearing from you as you pursue your educational and career goals. My best wishes for every success.



James J. Gozzo, Ph.D.
President

ACCREDITATION

The College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools (MSCHE), 3624 Market St., Philadelphia, PA 19104. (267)284-5000. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Commission on Recognition of Postsecondary Accreditation. The curriculum of each undergraduate or graduate program is approved by the New York State Education Department. The College's Pharmacy program is accredited by the Accreditation Council for Pharmacy Education (ACPE), 20 North Clark St., Suite 2500, Chicago, IL 60602-5109, (312)664-3575. Its Cytotechnology program holds accreditation from the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 1361 Park St., Clearwater, FL 33756. (727)210-2350. The College's Clinical Laboratory Sciences holds accreditation from the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 8410W Bryn Mawr Ave., Suite 670, Chicago, IL 60631. (773)714-8880.

ACCREDITATION SELF-STUDIES

All academic programs at ACPHS undergo periodic accreditation reviews to assure that the governing accreditation standards are being met. As part of the review process, programs are asked to complete extensive self-study reports. Student input into this process is an integral part of our ongoing quality improvement process and accreditation reviews.

(Disclaimer)

All information in this Catalog pertains to the 2011-2012 academic year and is correct to the extent that the information was available (by August 2011). However, Albany College of Pharmacy and Health Sciences reserves the right to change the course offerings, tuition, fees, rules governing admission, requirements for graduation and the granting of degrees, and any other regulations affecting its students. Such changes will take effect as determined by the College, whether or not there is actual notice to individual students, prospective students or their parents. The College also reserves the right to revise this Catalog at any time without notice, either by direct amendment or by promulgation of a policy or procedure that modifies or abrogates any provision in the Catalog.

Albany College of Pharmacy and Health Sciences does not discriminate on the basis of race, color, sex, sexual preference, age, religion, creed, national origin, marital status, Vietnam Era Veteran status, disabled Veteran status or disability in its programs and activities. The College's policy of nondiscrimination extends to all areas of College operations, including, but not limited to, admissions, student aid, athletics, employment and educational programs. All the rights, privileges, programs and activities generally accorded to all full-time matriculated students of the College are accorded on a nondiscriminatory basis. Albany College of Pharmacy and Health Sciences is an equal opportunity employer that conforms to the regulations and policies of affirmative action and of Title IX. The following person has been designated to handle inquiries regarding the nondiscrimination policies: Gerald H. Katzman, Esq., General Counsel, Albany College of Pharmacy and Health Sciences, 106 New Scotland Ave., Albany, NY 12208-3492; (518) 694-7298; Fax: (518) 694-7341; gerald.katzman@acphs.edu.

NOTIFICATION OF RIGHTS UNDER FERPA

The Family Educational Rights and Privacy Act of 1974 (FERPA) affords students certain rights with respect to their education records. They are:

(1) The right to inspect and review your student education records within 45 days of the day Albany College of Pharmacy and Health Sciences (ACPHS) receives a request for access. Students should submit to the Registrar written requests that identify the record(s) they wish to inspect. The Registrar will make arrangements for access and notify the student of the time and place where the records may be inspected. ACPHS will respond to reasonable requests for explanations and interpretations of the records.

(2) The right to request an amendment of your student education records that you believe are inaccurate, misleading, or otherwise in violation of your privacy rights. FERPA, however, only allows students to challenge and correct "ministerial errors" in their records, not to bring substantive claims regarding the reasons for a particular notation having been made. Students may ask ACPHS to amend a record that they believe is inaccurate or identify the part of the record they want changed, and specify why it is inaccurate or misleading. If ACPHS decides not to amend the record as requested by the student, ACPHS will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

(3) The right to consent to disclosures of personally identifiable information contained in your student education records, except to the extent that FERPA authorizes disclosure without consent. One exception which permits disclosure without consent is disclosure to ACPHS officials with legitimate educational interests. An ACPHS official is a person employed by ACPHS in an administrative, supervisory, academic, research, or support staff position, or a person or company with whom ACPHS has contracted (such as an attorney, auditor, security personnel or collection agent or an enrollment or degree verification service, and includes the National Student Clearing House, the New York State Board of Pharmacy and similar licensing authorities, and NAPLEX); iParadigms, LLC developers of Turnitin; a person serving on the Board of Trustees of ACPHS; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another ACPHS official in performing his or her tasks. An ACPHS official has a

legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional or job responsibilities.

(4) The right to refuse to permit the designation of any or all of the following categories of personally identifiable information, hereafter "directory information," which is not subject to the above restrictions on disclosure and may be disclosed by the College at its discretion:

- name and campus e-mail address;
- city, town or village and state or country of residence;
- class, anticipated date of graduation, major field of study, including the college, division, department, or program in which the student is enrolled;
- participation in officially recognized activities and sports;
- weight and height of members of athletic teams;
- the most recent educational institution attended and previous educational institutions attended and dates of graduation therefrom;
- honors and awards received, including selection to a Dean's list or honorary organization, photographic, video or electronic images of students taken and maintained by ACPHS;
- marital status and spouse's name;
- parents' names and city, town or village and state or country of their residence.

Any student wishing to exercise this right must inform the ACPHS Registrar in writing, by completing a form available in the Registrar's office, within two weeks of the date you receive this notice, of the categories of personally identifiable information which are not to be designated as directory information with respect to that student.

(5) The right to file a complaint with the U.S. Department of Education concerning alleged failures by ACPHS to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is:

**Family Policy Compliance Office
US Department of Education
400 Maryland Avenue, SW
Washington, DC 20202-5920
Phone: (202) 260-3887**

2011-12 COLLEGE CALENDAR

FALL SEMESTER 2011

August 25 – 28	Orientation (Thursday-Sunday) -- First Year Class & Transfers
August 26	Orientation – Vermont Campus and Albany P1 Transfers
August 26	Freshmen Convocation
August 29	Classes Start
September 5	Labor Day – No Classes or Pharmacy Practice Experiences
September 23	Last Day to Drop a Course without Academic Penalty
October 10 - 11	Fall Recess (Monday-Tuesday)
October 12	Classes Resume (Wednesday)
November 23-25	Thanksgiving Recess (Wednesday-Friday)
November 28	Classes Resume (Monday)
December 10	Classes End (Friday)
December 12-16	Final Examinations (Monday-Friday)

SPRING SEMESTER 2012

January 16	Martin Luther King Day (Monday) – No Classes
January 17	Classes Start (Tuesday)
February 10	Last Day to Drop a Course without Academic Penalty
February 20	President’s Day (Monday) – No Classes
February 21	Classes Resume (Tuesday)
March 12-16	Spring Recess (Monday-Friday) – No Classes
March 19	Classes Resume (Monday)
April 27	Classes End (Friday)
April 30 - May 4	Final Examinations (Monday-Friday)
May 11	Hooping and Awards Ceremony (Friday)
May 12	Commencement (Saturday)

SUMMER SESSION 2012

May 21	First Summer Session Begins (Monday)
May 28	Memorial Day (Monday) – No Classes
May 29	Classes Resume (Tuesday)
June 29	First Summer Session Ends (Friday)
July 2 – July 6	Summer Break (Monday-Friday)
July 9	Second Summer Session Begins (Monday)
August 17	Second Summer Session Ends (Friday)

2012-13 COLLEGE CALENDAR

FALL SEMESTER 2012

August 21 – 26	Orientation (Tuesday-Sunday) - Albany
August 27	Classes Start (Monday)
September 3	Labor Day (Monday) – No Classes
September 21	Last Day to Drop a Course Without academic penalty
October 8 – 9	Fall Recess (Monday-Tuesday)
October 10	Classes Resume (Wednesday)
November 21-23	Thanksgiving Recess (Wednesday-Friday)
November 26	Classes Resume (Monday)
December 7	Classes End (Friday)
December 10- 14	Final Examinations (Monday-Friday)

SPRING SEMESTER 2013

January 21	Martin Luther King Day (Monday) – No Classes
January 22	Classes Start (Tuesday)
February 15	Last Day to Drop a Course without Academic Penalty
February 18	President’s Day (Monday) – No Classes
February 19	Classes Resume (Tuesday)
March 18-22	Spring Recess (Monday-Friday) – No Classes
March 25	Classes Resume (Monday)
May 3	Classes End (Friday)
May 6 - 10	Final Examinations (Monday-Friday)
May 17	Hooding and Awards Ceremony (Friday) - Albany
May 18	Albany Commencement (Saturday)
May 19	Vermont Commencement and Hooding/Awards (Sunday)

SUMMER SESSION 2013

May 20	First Summer Session Begins (Monday)
May 27	Memorial Day (Monday) – No Classes
May 28	Classes Resume (Tuesday)
June 28	First Summer Session Ends (Friday)
July 1 – July 5	Summer Break (Monday-Friday)
July 8	Second Summer Session Begins (Monday)
August 16	Second Summer Session Ends (Friday)

EXPERIENTIAL EDUCATION 2011-2012 CALENDAR

<p><u>Community IPPE Dates:</u></p> <p>Session 1. 5/23/11-6/10/11 Session 2. 6/13/11-7/1/11 Session 3. 7/11/11-7/29/11 Session 4. 8/1/11-8/19/11</p> <p><u>Institutional IPPE DATES</u></p> <p>Session 1. 5/16/11-6/3/11 Session 2. 6/6/11-6/24/11 Session 3. 6/27/11-7/15/11 Session 4. 7/18/11-8/5/11 Session 5. 8/8/11-8/26/11</p> <p><u>PH/PA IPPE DATES</u></p> <p>Session 1. 5/23/11-5/27/11 Session 2. 6/6/11-6/10/11 Session 3. 6/13/11-6/17/11 Session 4. 6/20/11-6/24/11 Session 5. 6/27/11-7/1/11 Session 6. 7/11/11-7/15/11 Session 7. 7/18/11-7/22/11 Session 8. 7/25/11-7/29/11 Session 9. 8/1/11-8/5/11 Session 10. 8/8/11-8/12/11 Session 11. 8/15/11-8/19/11 Session 12. 1/9/12-1/13/12(Winter Break) Session 13. 3/12/12-3/16/12 (Spring Break)</p>	<p><u>MODULE</u></p> <p>A 5/23/11-7/1/11 B 7/5/11-8/12/11 C 8/15/11-9/23/11 D 9/26/11-11/4/11 E 11/7/11-12/16/11 Break 12/19/11-12/30/11 F 1/3/12-2/10/12 G 2/13/12-3/23/12 H 3/26/12-5/4/12 I**(make-up) 5/7/12-6/15/12</p> <p><u>VACATION/HOLIDAYS</u></p> <p>Monday, May 30, 2011 (Memorial Day) Monday, July 4, 2011 Monday, September 5, 2011 (Labor Day) Monday, October 10, 2011(Columbus Day) Thursday & Friday, November 24 & 25, 2011 (Thanksgiving Holidays) Monday, January 2, 2012 (New Years Day) Monday, January 16, 2012 (Martin Luther King, Jr. Day) Monday, February 20, 2012 (President's Day) Monday, May 28, 2012 (Memorial Day)</p> <p><u>GRADUATION – Saturday, May 12, 2012</u></p>
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ADVANCED PHARMACY PRACTICE EXPERIENCES (APPE) 2011-2012 CALENDAR

<u>MODULE</u>	<u>DATES</u>
A	5/23/11 – 7/1/11
B	7/5/11 – 8/12/11
C	8/15/11 – 9/23/11
D	9/26/11 – 11/4/11
E	11/7/11 – 12/16/11
Break	12/19/11 – 12/30/11
F	1/3/12 – 2/10/12
G	2/13/12 – 3/23/12
H	3/26/12 – 5/4/12
I*	5/7/12 – 6/15/12 * (Make-up rotations only)

VACATION/HOLIDAYS:

Monday, May 30, 2011 (Memorial Day)
Monday, July 4, 2011
Monday, September 5, 2011 (Labor Day)
Monday, October 10, 2011 (Columbus Day)
Thurs & Friday, November 24 & 25, 2011 (Thanksgiving Holidays)
Monday, January 2, 2012 (New Years Day)
Monday, January 16, 2012 (Martin Luther King, Jr. Day)
Monday, February 20, 2012 (President's Day)
Monday, May 28, 2012 (Memorial Day)

GRADUATION:

Saturday, May 12, 2012

RICH IN TRADITION.... DEDICATED TO THE ADVANCEMENT OF HEALTH

Entering its 131st academic year in 2011-12, ACPHS reflects proudly on a history in which its focus has always been to provide a professional challenge – in the classroom and in the laboratory – and a personal challenge, fostering independence, responsibility and self-awareness. The success of the College can be seen in its graduates and student body, who share a concern for the health and well-being of others.

Founded in 1881 as the Department of Pharmacy of Union University, a faculty of three members taught a curriculum of only four courses in the first year. Today, more than 100 full-time faculty, 45 part-time faculty and more than 200 adjuncts teach more than 110 courses for graduate and undergraduate degree programs in pharmacy, pharmaceutical sciences, biomedical technology and health and human sciences. In 2009, the College accepted its first students at its satellite campus, known as the Vermont campus, in Colchester, Vermont. As the College continues its commitment to the expansion of the academic programs, it has also created a place for itself in research and scholarship regionally and nationally. In addition, the College has established post-graduate residency and fellowship programs in different clinical disciplines; and each year the Office of Continuing Professional Development provides continuing education to more than 2,000 professionals.

The college's current structure includes three schools, each with its own Dean:

1. School of Pharmacy and Pharmaceutical Sciences;
2. School of Arts and Sciences; and
3. School of Health Sciences.

THE ALBANY CAMPUS

ACPHS-Albany is located on New Scotland Avenue across the street from the Albany Medical Center. In addition to the Doctor of Pharmacy program, the Albany Campus offers numerous degree programs in health and pharmaceutical-related disciplines.

THE VERMONT SATELLITE CAMPUS

ACPHS's satellite campus is located in scenic Colchester, Vermont, between the Green Mountains and Lake Champlain, and just minutes from Burlington. It is the only Doctor of Pharmacy program in Vermont.

THE LEARNING EXPERIENCE

THE CAMPUS

Facilities include the **Francis J. O'Brien Building**, the College's first building on the Albany Campus, which was constructed in 1927. The building houses classrooms, labs, administrative and faculty offices, the Office of Admissions, and the Office of Institutional Advancement.

The **Library Building**, with its classic Georgian architecture, is home to the Office of the Dean of Students, the Registrar's Office, the Office of Innovative Learning and Academic Support Services, the Fitness Center, and of course, the Library.

Adjacent to the Library Building is the **Albert M. White Gymnasium**, featuring a full-length basketball court that is open to students except on days of events.

Across from the Library Building is the College's newest facility, the **ACPHS Student Center**, which opened in 2006. The Dining Hall, the Bookstore, the Rite Aid Student Lounge, the Office of Campus Life, and the Barbara M. DiLascia '55 Lecture Hall are located here.

The **Bioscience Research Building** is home to the Department of Pharmaceutical Sciences and the Animal Research Facility.

Princeton Classrooms, located at 84 Holland Avenue, are home to the classrooms used for active learning, teaching and case studies.

The college's cutting-edge **Pharmaceutical Research Institute** is located in Rensselaer, NY.

In addition, the College's newest addition is a **satellite campus in Colchester, Vermont**, just outside of Burlington, which opened in August 2009.

RESIDENCE LIFE

The College provides housing opportunities for all students. Living on campus is required in years one and two and optional in years three and above. Approximately 1,000 students – two thirds of the student body – live on campus. The three campus residence facilities, South Hall, Notre Dame Hall, and Holland/Princeton Suites, offer a variety of amenities, such as wireless and hardwired Internet service, cable television, local phone service, and free laundry facilities. All residence facilities are secured with electronic access doors and 24-hour monitored security. They are also equipped with closed circuit television cameras on all entries, exits and parking lots around the facility. Emergency telephone systems are located throughout the campus to help ensure security. (*See Student Handbook for more information.*)

DINING SERVICES

Through Chartwells Dining Services, ACPHS offers three meal plans that provide students with a variety of dining options. The Vermont Campus offers a single meal plan through its Brain Food Café. (*See Student Handbook for more information.*)

CLUBS, ORGANIZATIONS & ATHLETICS

ACPHS offers a broad range of extracurricular activities, including clubs, fraternities, professional organizations, athletic teams, and intramural and club sports, to contribute to a full and rewarding college experience at both campuses. (*See Student Handbook for more information.*)

THE MOBILE COMPUTING TECHNOLOGY PROGRAM

ACPHS utilizes information technology to the fullest extent possible to enhance the learning environment. Our Mobile Computing Technology Program recommends all students entering the College for the first time to purchase a tablet PC with Microsoft Windows 7. ACPHS has a Tablet Program that offers a complete package that includes a state-of-the-art HP 2730p loaded with the software needed for your ACPHS coursework and specially configured for easy connection to the ACPHS network. Networked printers are available in common areas, as are Internet ports and wireless access. Hardware and software support are provided by ACPHS-IT staff for students who participate in the ACPHS Tablet Program. Support is provided at the Support Center or through help desk.

ACCOMMODATIONS UNDER THE AMERICANS WITH DISABILITIES ACT OR SECTION 504 OF THE REHABILITATION ACT

Students at Albany College of Pharmacy and Health Sciences who seek “reasonable accommodation” under the Americans with Disabilities Act or Section 504 of the Rehabilitation Act are responsible for notifying the Director of Counseling and Wellness of their disability. There is an established procedure and form to complete. This information can be found on the Office of Counseling and Wellness website on Blackboard under the “Academic/Medical” tab. Students requesting accommodations are encouraged to read this before meeting with or submitting materials to the Director of Counseling and Wellness. In brief, the student seeking accommodation must make a formal request for a reasonable accommodation. This request should be made in writing to the Director of Health and Wellness and should specify the nature of the accommodation being requested. While a student can request a particular type of accommodation, it is the College that determines how to meet a particular need. Therefore, alternative accommodations may be provided that are more cost-effective or efficient than those requested by the student seeking accommodation. Together with the request for accommodation, the student seeking accommodation must submit documentation of disability, which will be kept on file with the Director of Counseling and Wellness. Such documentation is subject to the provisions of the HIPAA Privacy and Security Rules (Health Insurance Portability and Accountability Act). The documentation must support the accommodation request by demonstrating by competent qualified opinion that the student requesting accommodation has a physical, mental or learning impairment that substantially limits a major life activity and sets forth the nature, manner and duration of that limitation. The College reserves the right to require further evaluation.

COUNSELING AND WELLNESS: **ALBANY CAMPUS**

The Office of Counseling and Wellness at ACPHS is located on the second floor of the Student Center and offers wellness and mental health services to students and their families, as well as faculty and staff. Services include individual, group and family therapy for a variety of issues, including mood and anxiety disorders; adjustment and interpersonal problems; stress related difficulties; eating and substance abuse disorders; and many other concerns. These services are free, and all counseling, consultations and referrals are kept strictly confidential, in accordance with legal and professional guidelines. Full-time licensed clinicians staff the Center, and when clinically warranted, can coordinate admission to a local, or a student’s hometown, psychiatric center. They may be contacted directly by phone or e-mail, or appointments can be made through the confidential secretary/receptionist at 518.694.7107 or emailing counselingservices@acphs.edu. Contact information can be obtained by visiting the Counseling and Wellness site on Blackboard.

VERMONT CAMPUS

Free and confidential counseling services are available for all eligible ACPHS students and are provided by the Fletcher Allen Health Care (FAHC) Employee Assistance Program (EAP). Services provided include initial assessment, counseling and referral. Crisis counseling is available when necessary, and unlimited telephone consultation is available. Students will be given timely appointments within 48 hours of the request. Should the need for services extend beyond the short term model of treatment, EAP can provide additional services using the student’s insurance or with the student paying out-of-pocket, or a referral can be made to an agency in the area. Counseling services will be provided on-site when hours are available or at offsite locations near the campus to include: Fanny Allen Hospital campus, 790 College Parkway, Rte. 15, Colchester and the University Health Center campus (UHC), 1 So. Prospect St., Burlington; 802-847-2827 or email efap@vtmednet.org.

ACADEMIC SUPPORT SERVICES

Services provided:

Academic Advising
Career Services
Instructional Technology
Library Services
Peer Tutoring Program
Science Assistance Center
Teaching and Learning Effectiveness
The Writing Center

ACADEMIC ADVISING

Upon matriculation each ACPHS student is assigned an academic advisor, a faculty member who can help guide students through their academic career, including but not limited to appropriate course selection, research, and career and leadership opportunities. Students in years one through five are required to meet with their academic advisor at least once a semester to discuss these matters as well as academic progress, career interests, opportunities and referral to support services where appropriate. Students that enter the College as a first year student are also assigned to a professional advisor. As members of the Office of Student Affairs (OSA), these advising professionals can assist students specifically with first year student needs, such as: academic and personal goals and planning their educational career accordingly. These OSA advising professionals work closely with first year faculty and monitor student progress through the distribution of midterm grades. OSA professional advisors are also available to provide an additional layer of advising expertise and support to second year students. The Advising Program at Albany College of Pharmacy and Health Sciences supports the Mission, Vision and Core Values of the College. The Advising Program is located in the Library Building.

CAREER SERVICES:

Career Services supports the mission of Albany College of Pharmacy and Health Sciences by providing instruction in career education, planning and development process. The Career Services staff maintains the philosophy and goals of the Office of Student Affairs, while working in tandem with stakeholders, including academic departments, alumni and employers, to offer students the best possible customer service. Career Services teaches the students of Albany College of Pharmacy and Health Sciences the methods of career research that will empower them to develop life-long career planning and job search skills. Career Services are located in the Library Building.

INSTRUCTIONAL TECHNOLOGY

Instructional technology resources and staff, under the leadership of the Director of Instructional Technology, are located on the second floor in the Library Building on campus. The Instructional Technology team works with faculty to develop and implement creative ways of utilizing technology to support effective instruction. Based on sound educational theory, the goal of the Instructional Technology team is to optimize each faculty member as a subject matter expert and to promote and support technology integration into curriculum. Technological and pedagogical training and workshops are coordinated and conducted by the Instructional Technology team to provide opportunities in exploring the use of emerging instructional technologies and to facilitate their effective implementation. This includes courses of various delivery modes, such as face-to-face, hybrid, and distance courses. In addition to supporting faculty and courses, the team works to serve the educational needs of the entire College community through tutoring, workshops, trainings, and seminars. For more information please visit the Instructional Technology website on Blackboard.

LIBRARY SERVICES

The Libraries on both campuses provide high quality resources, services and educational experiences to support the present and future information needs of the Albany College of Pharmacy and Health Sciences community.

ACPHS Libraries support College educational and research activities by providing quality resources in a variety of formats. The physical collection consists of books, journals, microforms, compact discs, and DVDs. The library website is the portal to an extensive online collection of research databases, electronic books, electronic journals, and mobile applications. To support their research needs students may print, photocopy, fax, and scan in the libraries.

Pharmacy and pharmaceutical sciences represent a particular strength in the collection, with extensive resources dating from the 1800s to the present. Our archives and museum house documents and artifacts that preserve the rich history of the profession of pharmacy and the College.

Students and faculty have direct access to additional resources through our partnerships with other local academic institutions. We also provide access to materials from libraries worldwide through interlibrary loan services which are freely available to students and faculty. When off-campus, students and faculty can access online library resources through a proxy server. Print resources are provided through a document delivery service.

Professional librarians provide research assistance to students and faculty in person and via phone, email and instant messaging. Librarians plan and deliver formal instruction that develops skills needed to find, retrieve, analyze and ethically use information. These educational activities span the curricula, engage multiple learning styles, and occur in individual, group and online settings.

Both newly renovated libraries are wireless saturated and provide comfortable and engaging spaces with ample seating for both individual study and collaborative learning.

PEER TUTORING PROGRAM

The Peer Tutoring Program provides academic assistance that encourages, promotes, and fosters students' independent learning skills. The program aims to provide quality assistance to all ACPHS undergraduate students at no direct cost to the student. Peer tutoring can be a highly effective adjunct in the learning process at ACPHS and is generally available for all of the core science and math courses offered at the College for most academic programs. Tutoring occurs in both individual and small group settings to emphasize the rich value of cooperative learning and reinforce time management skills. Tutors are current ACPHS students who have already taken the course, have been approved by a faculty member, and have received training. During the fall and spring semesters, Peer Tutoring is available beginning the second week of classes through the last day of class. Peer tutoring resources may be limited during ACPHS Summer Sessions. Individual peer tutor availability may vary based on demand. Peer tutoring opportunities are available on both the Albany and Vermont campuses. Distance education technology will be used to facilitate both the training and the delivery of tutoring services as needed. The Peer Tutoring Program's comprehensive training is certified as a Level 1 Training Program by the College Reading and Learning Association (CRLA), an international leader in learning assistance. For more program information, applications and a detailed Peer Tutoring Program schedule, please contact the Director of Academic Learning Services, e-mail peertutoring@ACPHS.edu or visit the Blackboard Peer Tutoring Program website.

SCIENCE ASSISTANCE CENTER

The Science Assistance Center provides students on the Albany campus with professional level academic services designed to support math and science courses offered by the Department of Arts and Sciences. These services, coordinated with course coordinators, include recitation sessions (group tutoring) and office hours (one-on-one tutoring). The complementary hours of the Science Assistance Center (primarily day) and peer tutoring (primarily evenings) provide students with unprecedented levels of science support beyond that which is provided by course instructors. The Science Assistance Center is located on the third floor of the Library Building.

TEACHING & LEARNING EFFECTIVENESS

The Teaching and Learning Effectiveness (TLE) supports and fosters a culture of excellence and innovation in teaching and learning through collaboration and partnerships among and between all members of the ACPHS community (administration, faculty, staff, alumni and students). As part of its commitment to meeting the diverse needs of student learners and preparing them for the continuum of lifelong education, the TLE offers comprehensive services which help students grow academically, personally and professionally. In addition, the TLE provides practical instructional development opportunities for faculty, encourages a commitment to active learning pedagogies, supports innovative tools, technologies and learning models, and promotes the scholarship of teaching and learning. The TLE is located on the second floor of the Library Building on the Albany Campus.

WRITING CENTER

The ACPHS Writing Center, located on the Albany Campus on the third floor of the Library Building, supports oral, written, and visual communication initiatives across the curriculum. Expert staff and student writing consultants are available for individual or small-group sessions on a wide variety of academic assignments or professional tasks, such as essays, literature reviews, lab reports, letters of application, resumes, seminar presentations, or speeches. The Center is open to all members of the College community, including students, faculty and staff.

GENERAL EDUCATION

The General Education program at ACPHS supports the mission of the College to instill values, attitudes and skills that enable lifelong intellectual, cultural, personal and professional growth. Courses offered in the first two years expand the student's historical, cultural, literary, scientific and philosophical perspectives. These courses also foster the critical assessment of ethical and humanistic values, and emphasize the communication, critical thinking and problem-solving skills that prepare the student to advance in their professional discipline and cultural competency. Through its blend of required and elective courses, the College strives to expose students to the complexities of the world and prepare them to become valuable participants. The College's adaptations of the American Association of Colleges of Pharmacy's Center for the Advancement of Pharmacy Education's educational outcomes are:

ABILITY-BASED OUTCOMES

Thinking Abilities: Think critically, solve complex problems and make informed, rational, responsible decisions within scientific, social, cultural, legal, clinical and ethical contexts.

- Identify, retrieve, understand, apply, analyze, synthesize and evaluate information needed to make informed, rational, responsible and ethical decisions.
- Solve complex problems that require an integration of one's ideas and values within a context of scientific, social, cultural, legal, clinical and ethical issues.
- Display habits, attitudes and values associated with mature critical thinking.

Communication Abilities: Communicate clearly, accurately and persuasively with various audiences using a variety of methods and media.

- Read and listen effectively.
- Effectively communicate in speaking and writing, choosing strategies and media that are appropriate to the purpose of the interaction and to the ideas, values and background of the audience.

Responsible Use of Values and Ethical Principles: Systematically make and defend rational, ethical decisions regarding potentially complex personal, societal and professional situations within a context of personal and professional values.

Social Awareness, Social Responsibility and Citizenship

- Demonstrate sensitivity and tolerance of cultural diversity in all interactions and settings.
- Demonstrate an appreciation of the obligation to participate in efforts to help individuals and to improve society and the health care system.

Self-Learning Abilities and Habits: Self-assess learning needs and design, implement and evaluate strategies to promote intellectual growth and continued professional competence.

- Establish personal and professional learning goals and determine areas of deficiency and/or interest.
- In order to achieve established learning goals, engage in learning activities on an ongoing basis for personal or professional development based on self-determined areas of deficiency and/or interest.

Social Interaction: Function effectively in interactions with individuals, within group situations, within the workplace and within professional organizations and systems.

Numeracy: Use mathematics effectively to meet the demands of day-to-day life at home, at work and in society.

SCHOOLS AND PROGRAMS OF STUDY

The Albany College of Pharmacy and Health Sciences offers the following undergraduate and graduate programs of study. Some programs have specialized concentrations with more detailed information available in the sections of this Catalog devoted to each School.

SCHOOL OF ARTS AND SCIENCES

- I. Undergraduate Degree Programs**
 - 1. Bachelor of Science in Health and Human Sciences (HEGIS CODE 1201)**
 - 2. Bachelor of Science in Chemistry (HEGIS CODE 1905)**
 - 3. Pre-Pharmacy and Early Assurance (HEGIS CODE 1211)**

SCHOOL OF HEALTH SCIENCES

- I. Undergraduate Degree Programs**
 - 1. Bachelor of Science in Biomedical Technology (HEGIS CODE 1223)**
 - Clinical Laboratory Sciences
 - Cytotechnology
- II. Graduate Degree programs:**
 - 1. Master of Science in Biotechnology (HEGIS CODE 1223)**
 - 2. Master of Science in Cytotechnology & Molecular Cytology (HEGIS CODE 1223)**
 - 3. Master of Science in Health Outcome Research & Informatics (HEGIS CODE 1299)**
 - 4. Dual Bachelor of Science and Master of Science in Biotechnology/ Cytotechnology (HEGIS CODE 1223)**

SCHOOL OF PHARMACY AND PHARMACEUTICAL SCIENCES

- I. Undergraduate Degree programs:**
 - 1. Doctor of Pharmacy (Pharm. D.) program (HEGIS CODE 1211)**
 - 2. Bachelor of Science Degree in Pharmaceutical Sciences (HEGIS CODE 1211)**
 - Pharmaceutics Concentration
 - Pharmacology Concentration
 - Pharmaceutical Marketing and Regulatory Science
- II. Graduate Degree programs:**
 - 1. Master of Science in Pharmaceutical Sciences (HEGIS CODE 1211)**
 - Pharmaceutics Concentration
 - Pharmacology Concentration
 - 2. Dual Bachelor of Science and Master of Science in Pharmaceutical Sciences (HEGIS CODE 1211)**

The Albany College of Pharmacy grants Bachelor of Science and Master of Science degrees in a broad range of majors. The College also offers numerous joint degree programs with Union Graduate College, Albany Medical College, and Albany Law School.

JOINT DEGREE PROGRAMS WITH OTHER INSTITUTIONS:

The joint programs listed below are open to all BS programs (except for the MD with AMC).

- Pharm.D./Master of Science in Clinical Leadership in Health Management
- Pharm.D./MBA-Health Systems Administration
- BS in Pharmaceutical Sciences/Master of Science in Clinical Leadership in Health Management with Union Graduate College
- BS in Pharmaceutical Sciences/MBA-Health Systems Administration with Union Graduate College
- BS in Pharmaceutical Sciences/JD with Albany Law School
- BS in Pharmaceutical Sciences/MS with Albany Medical College
- BS in Clinical Laboratory Sciences/PA with Albany Medical College
- BS in Pharmaceutical Sciences/PA with Albany Medical College
- BSPS Early Assurance to the MD program at Albany Medical College
- BS with St. Michaels College/Pharm. D. with ACPHS Vermont Campus

In addition, Pre-Law and Pre-Med options are now available in all B.S. programs.

SCHOOL OF ARTS AND SCIENCES

Undergraduate Degree Programs

- **Bachelor of Science in Health and Human Sciences (HEGIS CODE 1201)**
- **Bachelor of Science in Chemistry (HEGIS CODE 1905)**
- **Pre-Pharmacy and Early Assurance (HEGIS CODE 1211)**

BACHELOR OF SCIENCE IN HEALTH AND HUMAN SCIENCES

For more than a century, ACPHS has provided students with a strong education in the biological sciences. The Health and Human Sciences program builds upon that recognized strength by adding the perspectives of the social sciences.

The foundation of ACPHS's Health and Human Sciences program is the blending of science courses with liberal arts courses that yield a keen understanding of the human condition. This is achieved by integrating core courses from the College's various health related programs in conjunction with approved electives.

The Health and Human Sciences Program combines training in the natural sciences (biology, physics, chemistry) with exposure to perspectives from the humanities (art, history, philosophy) and social sciences (sociology, political science, economics) in a mix that is ideal for students interested in careers in health. The nature of the program is interdisciplinary and will draw upon faculty from throughout ACPHS.

Graduates of the Health and Human Sciences program have the ability to enter a wide variety of careers as science and health writers; policy analysts; and researchers for government, consumer groups, and prestigious institutes. The program is also an excellent preparation for graduate programs in law, medicine, global and public health, health administration, sociology and other related fields.

The program prepares students to enter the workforce in a health related field and provides them with a solid foundation to pursue advanced studies in a graduate or professional school. The curriculum aims to fulfill this goal by ensuring that students:

- can demonstrate an understanding of the basic biological and physical principles relevant to health and illness
- can identify cultural, social, psychological, and economic dimensions of health and illness
- can examine human health issues through a multi-disciplinary perspective
- are able to critically and statistically analyze the primary literature of a variety of fields and develop comprehensive responses to interdisciplinary problems
- are able to communicate effectively with a variety of audiences written and orally
- can demonstrate an understanding of ethical and human rights principles related to health issues
- have a solid understanding of contemporary global health issues
- can apply content knowledge and experiences to design and implement health promotion and disease prevention strategies

BS IN HEALTH AND HUMAN SCIENCES REQUIRED COURSES

Natural Sciences: 41 required credits

General Chemistry I and II (8)

Organic Chemistry I and II (8)

General Biology I and II (8)

Anatomy and Physiology I and II (8)

Biochemistry (3)

6 credits chosen from Microbiology (4), Immunology (3), Molecular Biology (3), Cell Biology (3), College Physics I or II (4, 4), Genetics (3), or other related courses approved by the Program Director.

Humanities and Social Sciences: 27 required credits

The Pre-Modern World (3), The Modern World (3), The Contemporary World (3)

Psychology (3)

Sociology (3)

12 credit hours of Humanities and Social Sciences coursework including at least two courses that have a cultural component. Economics is highly recommended.

Health Related Coursework: 25 required credits

Seminar in Health Professions (1)

Introduction to Public Health (3)

Epidemiology (3) – Medical Sociology (3) may be substituted for Epidemiology

Qualitative and Quantitative Research Methods (3)

Health and Human Sciences Capstone Seminar (3)

12 credit hours chosen from Topics in Epidemiology (3), Aging and Society (3), Public Policy (3), Health Advocacy (3), Bioethics (3), Eugenics (3), Nutrition (3), Community Health (3), Global Health (3), Legal Aspects of Health Care (3), or other health related courses approved by the Program Director.

Communications: 9 required credits¹

Principles of Communication (3)

Public Speaking (3)

3 credit hours chosen from Professional and Technical Writing (3), Interpersonal Communication (3), Patient-Provider Communication (3), Group Communication (3), or Scientific Communication (3)

Mathematics: 9 credits

Introduction to Lab Data (2)

Calculus (4)

Elementary Statistics (3)

Electives: 15 credits

15 credits of free electives

¹All incoming students are assessed for their writing ability. The assessment is designed to direct students to the courses for which they are best prepared in the first year of the curriculum.

Information regarding joint programs between the BS in Health and Human Sciences Program and other institutions can be found in the Articulation Agreements and Joint Degree Programs section.

SAMPLE BS IN HEALTH AND HUMAN SCIENCES CURRICULUM

Year 1					
Fall Semester		Credits	Spring Semester		Credits
BIO 101	General Biology I	4	BIO 102	General Biology II	4
CHE 101	General Chemistry I	4	CHE 102	General Chemistry II	4
MAT 115	Introduction to Lab. Data	2	MAT 145	Elementary Statistics	3
HUM 101	The Pre-Modern World	3	HUM 102	The Modern World	3
BSS 102	Seminar in Health Professions	1	COM 115	Principles of Communication	3
SOC 101	Introduction to Sociology	3			
Total		17	Total		17
Year 2					
Fall Semester		Credits	Spring Semester		Credits
CHE 211	Organic Chemistry I	4	CHE 221	Organic Chemistry II	4
BIO 213	Anatomy and Physiology I	3	BIO 215	Anatomy and Physiology II	3
BIO 214	Anatomy and Physiology I lab	1	BIO 216	Anatomy and Physiology II lab	1
HUM 201	The Contemporary World	3	MAT 111	Calculus	4
ECN 101	Economics	3	PSY 101	Psychology	3
	Health Elective	3			
Total		17	Total		15
Year 3					
Fall Semester		Credits	Spring Semester		Credits
CHE 311	Biochemistry	3	HHS 301	Qual. & Quant. Res. Methods	3
PAD 391	Introduction to Public Health	3	COM 120	Public Speaking	3
SOC 325	Medical Sociology	3		Natural Science Elective	3
	Health Elective	3		Communication Elective	3
	HSS Elective	3		Free Elective	3
Total		15	Total		15
Year 4					
Fall Semester		Credits	Spring Semester		Credits
	Health Elective	3	HHS 401	HHS Capstone	3
	Natural Science Elective	3		Health Elective	3
	HSS Elective	3		HSS Elective	3
	Free Elective	3		Free Elective	3
	Free Elective	3		Free Elective	3
Total		15	Total		15

ACADEMIC STANDARDS FOR BS IN HEALTH & HUMAN SCIENCES

Students enrolled in the Bachelor of Science in Health and Human Sciences (BSHHS) program must meet the following academic standards.

Academic Probation

A student will be placed on probation if any of the following conditions exist:

- A semester or cumulative GPA below 2.0
- Two or more grades below C-
- A single grade of F

A student on academic probation must improve performance and meet the conditions of probation recommended by the Academic Standing Committee and administered by the Dean of Students before being removed from academic probation. While on academic probation a student is ineligible for class and student organization office, joining a fraternity, participation in intercollegiate athletics, and service on College committees. In some cases, financial aid may be jeopardized.

A student on academic probation will not be removed from academic probation until the student successfully completes a semester in good standing at ACPHS, either after or during the remediation of his/her deficiency as a fulltime student.

Academic Dismissal

A student may be dismissed from the College if one of the following conditions exists:

- Two instances of probation (whether consecutive or non-consecutive)
- A semester GPA below 1.6

Academic dismissal usually is not invoked until academic probation has been imposed. However, academic dismissal may be recommended before probation when a student's academic record is significantly below average performance. Students who are academically dismissed from the College are not permitted to enroll in or attend courses at the College, or to earn credit toward degrees offered at ACPHS.

Academic Appeals

Students are permitted to appeal decisions made by the Academic Standing Committee. Appeal requests must be submitted in writing to the Dean of Students. The letter should contain a statement referencing the original decision by the Academic Standing Committee and an explanation addressing why it is being appealed. The basis for such appeals should involve cases of unusual or extenuating circumstances that directly impacted the student's ability to meet the Albany College of Pharmacy and Health Sciences' academic standards. In the event that extenuating circumstances are identified, appropriate documentation supporting the assertion by a competent, qualified professional must be included when applicable. The College reserves the right to require further evaluation.

Deadlines for appeal are January 5 following the fall semester, June 5 following the spring semester, and August 20 following the summer semester. While there are deadlines for student appeals, appeals are heard on a rolling basis by the Academic Standing Appeals Committee.

Readmission Policy

Individuals who have been dismissed from the college for *academic* reasons may apply for readmission. To be considered for readmission, the applicant must be away from the College for at least one semester and demonstrate academic success at an accredited college or university. Students must apply for readmission to the Undergraduate Admissions and Academic Standards Committee (UAASC) by December 31 (for spring semester reinstatement) and May 30 (for fall semester reinstatement). Applications must include: a completed application form, cover letter, transcripts, and a letter of recommendation from the college or university attended. Upon review of the readmission package, UAASC may deny readmission, readmit the student, or readmit the student with conditions. Failure to meet the conditions of readmission will result in automatic dismissal from the College. A student dismissed from the College a second time will not be considered for readmission. *The College reserves the right to deny readmission to individuals who have been dismissed for academic reasons, regardless of whether or not minimal readmission criteria have been met.*

Minimum Requirements to Apply for Readmission

- Must be enrolled at an accredited College/University as a fulltime student (12 credits minimum) for at least 1 semester
- Must hold a minimum GPA of 2.0 (with no grades below a C)
- Must complete an application form
- Must provide a cover letter, transcripts, and a letter of recommendation from the college or university attended.
- Must apply for readmission by designated due dates (Dec. 31 or May 30)

See the Academic Regulations section for additional College-wide Academic Standards.

BACHELOR OF SCIENCE IN CHEMISTRY

The Chemistry program at ACPHS has two tracks that allow students to follow a traditional sequence of chemistry courses or to specialize in Medicinal Chemistry. The Chemistry program takes a unique interdisciplinary approach to how chemistry contributes to the pharmaceutical sciences. By selecting appropriate electives, graduates have many opportunities including:

- employment in pharmaceutical research, manufacturing, and production technology. The background in pharmaceutically related topics provided by the program provides graduates an advantage when competing for positions traditionally filled by biology or chemistry majors
- attending graduate school in the biological, chemical, or pharmaceutical sciences. Graduates are prepared for degree programs in such areas as medicinal chemistry, pharmacology, and pharmaceuticals
- attending professional schools (medical, dental, law)
- completing a Masters in Teaching degree at another institution

All graduates of the program are expected to fully integrate the theory and practical aspects of chemistry and to:

- demonstrate a working knowledge of traditional and emerging areas of chemistry
- obtain and interpret information from the scientific literature
- integrate and apply knowledge to solve complex scientific problems
- formulate solutions to research problems and demonstrate an understanding of the facilities and expertise necessary for carrying out these solutions
- possess appropriate laboratory skills including the ability to observe and record results, work safely, self-organize, and manage one's time
- effectively communicate scientific information both orally and in writing
- engage in work independently and collaboratively in scientific processes
- understand their ethical and professional responsibilities as well as an awareness of the contemporary societal and global issues facing scientists

BS IN CHEMISTRY REQUIRED COURSES

Chemistry

Traditional Track (45 credits)

General Chemistry I and II (8)
Organic Chemistry I and II (8)
Physical Chemistry I (3)
Physical Chemistry I lab (1)
Inorganic Chemistry (3)
Analytical Chemistry I and II (8)
Biochemistry I (3)
Biochemistry I lab (1)
Independent Research Project (6)
Research Seminar (1)
Physical Chemistry II (3)

Medicinal Chemistry Track (51 credits)

General Chemistry I and II (8)
Organic Chemistry I and II (8)
Physical Chemistry I (3)
Physical Chemistry I lab (1)
Inorganic Chemistry (3)
Analytical Chemistry I and II (8)
Biochemistry I (3)
Biochemistry I lab (1)
Independent Research Project (6)
Research Seminar (1)
Biochemistry II (3)
Medicinal Chemistry I and II (6)

Other Sciences

Traditional Track (16 credits)

Physics I and II (8)
General Biology I and II (8)

Medicinal Chemistry Track (31 credits)

Physics I and II (8)
General Biology I and II (8)
Anatomy and Physiology I and II (6)
Pharmaceutics I and II (6)
Pharmacokinetics (3)

Math

Traditional Track (14 credits)

Calculus I and II (8)
Differential Equations (3)
Statistics (3)

Medicinal Chemistry Track (14 credits)

Calculus I and II (8)
Differential Equations (3)
Statistics (3)

Humanities and Communication¹

Traditional Track (15 credits)

The Pre-Modern World (3), The Modern World (3),
The Contemporary World (3)
Principles of Communication (3)
Scientific Communication (3)

Medicinal Chemistry Track (15 credits)

The Pre-Modern World (3), The Modern World (3),
The Contemporary World (3)
Principles of Communication (3)
Scientific Communication (3)

Electives

Traditional Track (36 credits)

9 credits of advanced chemistry electives
9 credits of humanities and social science electives
18 credits of free electives

Medicinal Chemistry Track (18 credits)

6 credits of advanced chemistry electives
9 credits of humanities and social science electives
3 credits of free electives

Advanced chemistry electives include Organic Synthesis (3), Methods in Spectroscopy (3), Pharmaceutics I and II (3, 3), Clinical Chemistry (3), Biochemistry II (3), Pharmacokinetics (3), Medicinal Chemistry I and II (3, 3). Other courses may be counted at the discretion of the Program Director.

Total Credits: traditional track – 126 credits, medicinal chemistry track – 129 credits

¹All incoming students are assessed for their writing ability. The assessment is designed to direct students to the courses for which they are best prepared in the first year of the curriculum.

Information regarding joint programs between the BS in Chemistry Program and other institutions can be found in the Articulation Agreements and Joint Degree Programs section.

SAMPLE BS CHEMISTRY SCHEDULE: TRADITIONAL PROGRAM TRACK

Year 1					
Fall Semester		Credits	Spring Semester		Credits
CHE 101	General Chemistry I	4	CHE 102	General Chemistry II	4
BIO 101	General Biology I	4	BIO 102	General Biology II	4
HUM 101	The Pre-Modern World	3	HUM 102	The Modern World	3
MAT 121	Calculus I	4	MAT 211	Calculus II	4
	Elective	3	COM 115	Principles of Communication	3
	Total	18		Total	18
Year 2					
Fall Semester		Credits	Spring Semester		Credits
CHE 201	Organic Chemistry I	4	CHE 202	Organic Chemistry II	4
PHY 212	College Physics I	4	PHY 222	College Physics II	4
MAT 235	Differential Equations	3	MAT 145	Statistics	3
HUM 201	The Contemporary World	3		Elective	3
	Elective	3		Elective	3
	Total	17		Total	17
Year 3					
Fall Semester		Credits	Spring Semester		Credits
CHE 345	Physical Chemistry I	3	CHE 350	Physical Chemistry II	3
CHE 346	Physical Chemistry I Lab	1	CHE 380	Analytical Chemistry II	4
CHE 375	Analytical Chemistry I	4		Chemistry Elective	3
PSC 311	Biochemistry I	3		Elective	3
CHE 312	Biochemistry I Lab	1		Total	13
	Elective	3			
	Total	15			
Year 4					
Fall Semester		Credits	Spring Semester		Credits
PSC 463	Independent Research I	3	PSC 463	Independent Research II	3
PSC 253	Scientific Communication	3	PSC 454	Research Seminar	1
	Chemistry Elective	3	CHE 435	Inorganic Chemistry	3
	Elective	3		Chemistry Elective	3
	Elective	3		Elective	3
	Total	15		Total	13

SAMPLE BS CHEMISTRY SCHEDULE: MEDICINAL CHEMISTRY PROGRAM TRACK

Year 1						
Fall Semester			Credits	Spring Semester		
CHE 101	General Chemistry I	4		CHE 102	General Chemistry II	4
BIO 101	General Biology I	4		BIO 102	General Biology II	4
HUM 101	The Pre-Modern World	3		HUM 102	The Modern World	3
MAT 121	Calculus I	4		MAT 211	Calculus II	4
	Elective	3		COM 115	Principles of Communication	3
	Total	18		Total	Total	18
Year 2						
Fall Semester			Credits	Spring Semester		
CHE 201	Organic Chemistry I	4		CHE 202	Organic Chemistry II	4
PHY 212	College Physics I	4		PHY 222	College Physics II	4
BIO 213	Anatomy and Physiology I	3		BIO 215	Anatomy and Physiology II	3
HUM 201	The Contemporary World	3		MAT 145	Statistics	3
MAT 235	Differential Equations	3			Elective	3
	Total	17		Total	Total	17
Year 3						
Fall Semester			Credits	Spring Semester		
CHE 375	Analytical Chemistry I	4		CHE 380	Analytical Chemistry II	4
CHE 345	Physical Chemistry I	3		CHE 313	Biochemistry II	3
CHE 346	Physical Chemistry I Lab	1		PSC 342	Pharmaceutics II	3
PSC 311	Biochemistry I	3			Chemistry Elective	3
CHE 312	Biochemistry I Lab	1			Elective	3
PSC 341	Pharmaceutics I	3			Total	16
	Total	15				
Year 4						
Fall Semester			Credits	Spring Semester		
CHE 415	Medicinal Chemistry I	3		CHE 417	Medicinal Chemistry II	3
PSC 463	Independent Research I	3		PSC 463	Independent Research II	3
PSC 441	Pharmacokinetics	3		PSC 454	Research Seminar	1
PSC 253	Scientific Communication	3		CHE 435	Inorganic Chemistry	3
	Chemistry Elective	3			Elective	3
	Total	15		Total	Total	13

ACADEMIC STANDARDS FOR BS IN CHEMISTRY

Students enrolled in the Bachelor of Science in Chemistry program must meet the following academic standards.

Academic Probation

A student will be placed on probation if any of the following conditions exist:

- A semester or cumulative GPA below 2.0
- Two or more grades below C- in any required courses
- A single grade of F

A student on academic probation must improve performance and meet the conditions of probation recommended by the Academic Standing Committee and administered by the Dean of Students before being removed from academic probation. While on academic probation a student is ineligible for class and student organization office, joining a fraternity, participation in intercollegiate athletics, and service on College committees. In some cases, financial aid may be jeopardized.

A student on academic probation will not be removed from academic probation until the student successfully completes a semester in good standing at ACPHS, either after or during the remediation of his/her deficiency as a fulltime student.

Academic Dismissal

A student may be dismissed from the College if one of the following conditions exists:

- Two instances of probation (whether consecutive or non-consecutive)
- A semester GPA below 1.6

Academic dismissal usually is not invoked until academic probation has been imposed. However, academic dismissal may be recommended before probation when a student's academic record is significantly below average performance. Students who are academically dismissed from the College are not permitted to enroll in or attend courses at the College, or to earn credit toward degrees offered at ACPHS.

Academic Appeals

Students are permitted to appeal decisions made by the Academic Standing Committee. Appeal requests must be submitted in writing to the Dean of Students. The letter should contain a statement referencing the original decision by the Academic Standing Committee and an explanation addressing why it is being appealed. The basis for such appeals should involve cases of unusual or extenuating circumstances that directly impacted the student's ability to meet the Albany College of Pharmacy and Health Sciences' academic standards. In the event that extenuating circumstances are identified, appropriate documentation supporting the assertion by a competent, qualified professional must be included when applicable. The College reserves the right to require further evaluation. Deadlines for appeal are January 5 following the fall semester, June 5 following the spring semester, and August 20 following the summer semester. While there are deadlines for student appeals, appeals are heard on a rolling basis by the Academic Standing Appeals Committee.

Readmission Policy

Individuals who have been dismissed from the college for *academic* reasons may apply for readmission. To be considered for readmission, the applicant must be away from the College for at least one semester and demonstrate academic success at an accredited college or university. Students must apply for readmission to the Undergraduate Admissions and Academic Standards Committee (UAASC) by December 31 (for spring semester reinstatement) and May 30 (for fall semester reinstatement). Applications must include: a completed application form, cover letter, transcripts, and a letter of recommendation from the college or university attended. Upon review of the readmission package, UAASC may deny readmission, readmit the student, or readmit the student with conditions. Failure to meet the conditions of readmission will result in automatic dismissal from the College. A student dismissed from the College a second time will not be considered for readmission. *The College reserves the right to deny readmission to individuals who have been dismissed for academic reasons, regardless of whether or not minimal readmission criteria have been met. Early Assurance Students may lose their assured seat upon readmission.*

Minimum Requirements to Apply for Readmission

- Must be enrolled at an accredited College/University as a fulltime student (12 credits minimum) for at least 1 semester
- Must hold a minimum GPA of 2.0 (with no grades below a C)
- Must complete an application form
- Must provide a cover letter, transcripts, and a letter of recommendation from the college or university attended.
- Must apply for readmission by designated due dates (Dec. 31 or May 30)

See the Academic Regulations section for additional College-wide Academic Standards.

PRE-PHARMACY AND EARLY ASSURANCE

Albany College of Pharmacy and Health Sciences offers a 6 year curriculum (2-year pre-pharmacy and 4-year professional) leading to a Doctor of Pharmacy (PharmD) degree and eligibility for licensure within the profession. Students may enter the pre-pharmacy program through two methods based on the applicant's strength of their application:

- early assurance (guaranteed admission into the first professional year (P1) provided all progression requirements met) or
- general pre-pharmacy (enroll in bachelor's program in Health & Human Sciences; must apply for admission into P1 through PharmCAS).

External students may transfer into the pre-pharmacy program under the early assurance or general pre-pharmacy studies routes of entry if seats are available. Students may opt to complete the four professional years on the Albany or Vermont campus.

PRE-PHARMACY/EARLY ASSURANCE REQUIRED COURSES

Natural Sciences: 39 required credits

General Chemistry I and II (8)

Organic Chemistry I and II (8)

College Physics I and II (8)

General Biology I and II (8)

Microbiology (4)

3 credits of Bioselective chosen from Cell Biology (3), Anatomy and Physiology I or II (4 each), Genetics (3), Bacterial Pathogenesis (3), Hematology (3), Functional Anatomy (3), Contemporary Issues in Infectious Disease (3), or Applied Neuroscience I or II (3 each). Other courses may be counted as a bioselective with the permission of the Chair of the Department of Basic and Social Sciences.

Humanities and Social Science: 12 required credits

The Pre-Modern World (3), The Modern World (3), The Contemporary World (3)

Psychology (3)

Communications: 3 required credits¹

Principles of Communication (3)

Mathematics: 7 credits

Calculus (4)²

Elementary Statistics (3)

Electives: 9 credits³

9 credits of electives

¹All incoming students are assessed for their writing ability. The assessment is designed to direct students to the courses for which they are best prepared in the first year of the curriculum.

²Calculus I and II may be substituted for Calculus with 4 credits counting toward elective hours.

³Students completing the PharmD program must have a total of 9 elective liberal arts credits.

GENERAL PRE-PHARMACY AND EARLY ASSURANCE CURRICULUM

Year 1						
Fall Semester			Credits	Spring Semester		
BIO 101	General Biology I	4		BIO 102	General Biology II	4
CHE 101	General Chemistry I	4		CHE 102	General Chemistry II	4
MAT 111	Calculus ¹	4		COM 115	Principles of Communication ¹	3
HUM 101	The Pre-Modern World	3		HUM 102	The Modern World	3
	Elective ²	3		COM 115	Elective	3
Total		18		Total		17
Year 2						
Fall Semester			Credits	Spring Semester		
CHE 211	Organic Chemistry I	4		CHE 221	Organic Chemistry II	4
PHY 212	College Physics I	4		PHY 222	College Physics II	4
HUM 201	The Contemporary World	3		PSY 101	Psychology	3
BIO 210	Microbiology	4		MAT 145	Elementary Statistics	3
	Elective	3			Biology Selective	3
Total		18		Total		17

¹Some students will take these courses in the alternate semesters

²Students needing additional writing skill development take Academic Reading and Writing in place of this elective.

ACADEMIC STANDARDS FOR PRE-PHARMACY AND EARLY ASSURANCE

Students enrolled in the Pre-Pharmacy Program as either general pre-pharmacy or early assurance students must adhere to the following academic standards:

General Requirements

- Upon matriculation, all required courses must be taken at ACPHS.

Summer Sessions

Pre-pharmacy students are allowed to take courses during the summer as long as doing so meets the General Academic Requirements and Course Remediation policies.

- For a student enrolled in 9 or more credit hours at ACPHS during the summer semester, all academic regulations apply. For students enrolled in less than 9 credit hours, course grade performance will be factored into their overall academic record and academic status will be determined at the end of the next (fall) semester.
- A summer course failure results in a probationary status with all the corresponding implications of probation.
- A maximum of 10 semester hours of coursework is allowed during any summer semester at institutions other than ACPHS

Course Remediation

Any grade of F must be remediated by pre-pharmacy students.

- Students may remediate courses at ACPHS or may do so at another accredited institution if the course is pre-approved by the course professor or course coordinator (see registrar's website for approval form). Students must earn a grade of C or better in courses repeated at other institutions.
- Independent study cannot be used for remedial purposes.
- Upon course remediation of a required or elective course, a record of both courses will remain on the official transcript. If completed at ACPHS, the remediated grade will be used in the calculation of the GPA. If completed elsewhere, neither the original nor the remediated course grade will be used in GPA calculations.
- Depending on the prerequisite requirements of future courses, a student's progression through the pre-pharmacy program and subsequent entry into the P1 year may be delayed. All remediated coursework required for entry into P1 must be completed by May 31 preceding P1 entry. The grades of remediated courses taken after the deadline of May 31 will not be considered for progression into the P1 class.

Academic Probation

The academic progress of each student is reviewed at the end of each semester in order to identify students who are maintaining successful academic performance, to identify those in academic difficulty, and to offer assistance to such students. Students who do not meet the college-wide academic requirements will be placed on college probation. The expectation is that a student will improve academically, meet the cumulative GPA and individual course requirements, and will be removed from probation. A pre-pharmacy student will be placed on program probation if any of the following conditions exist:

- A semester or cumulative GPA below 2.0.
- Two or more required course grades below C-.
- A single grade of F.

While on academic probation a student is ineligible for class and student organization office, joining a fraternity, participation in intercollegiate athletics and service on College committees. In some cases, financial aid may be jeopardized.

Academic Dismissal

A pre-pharmacy student may be dismissed from the College if any of the following conditions exist:

- Two instances of probation (whether consecutive or nonconsecutive)
- A semester GPA below 1.6

Academic dismissal usually is not invoked until academic probation has been imposed. However, academic dismissal may be recommended before probation when a student's academic record is significantly below average performance. Students who are academically dismissed from the College are not permitted to enroll in or attend courses at the College, or to earn credit toward degrees offered at ACPHS.

Academic Appeals

Academic probation and dismissal decisions are made by the Academic Standing Committee. Students are permitted to appeal these decisions. Appeal requests must be submitted in writing to the Dean of Students. The letter should contain a statement referencing the original decision and an explanation addressing why it is being appealed. The basis for such appeals should involve cases of unusual or extenuating circumstances that directly impacted the student's ability to meet the ACPHS academic standards. In the event that extenuating circumstances are identified, appropriate documentation supporting the assertion by a competent, qualified professional must be included when applicable. The College reserves the right to require further evaluation. Deadlines for appeal are January 5 following the fall semester, June 5 following the spring semester, and August 20 following the summer semester. While there are deadlines for student appeals, appeals are heard on a rolling basis by the Academic Standing Appeals Committee.

Readmission Policy

Pre-pharmacy students who have been dismissed from the college for *academic* reasons may apply for readmission. To be considered for readmission, the applicant must be away from the College for at least one semester and demonstrate academic success at an accredited college or university. Students must apply for readmission to the Undergraduate Admissions and Academic Standards Committee (UAASC) by December 31 (for spring semester reinstatement) and May 30 (for fall semester reinstatement).

Applications must include: a completed application form, cover letter, transcripts, and a letter of recommendation from the college or university attended. Upon review of the readmission package, UAASC may deny readmission, readmit the student, or readmit the student with conditions. Failure to meet any conditions of readmission will result in automatic dismissal from the College. A student dismissed from the College a second time will not be considered for readmission. *The College reserves the right to deny readmission to individuals who have been dismissed for academic reasons, regardless of whether or not minimal readmission criteria have been met.*

Minimum Requirements to Apply for Readmission:

- Must be enrolled at an accredited College/University as a fulltime student (12 credits minimum) for at least 1 semester
- Must hold a minimum GPA of 2.0 (with no grades below a C)
- Must complete an application form
- Must provide a cover letter, transcripts, and a letter of recommendation from the college or university attended.
- Must apply for readmission by designated due dates (Dec. 31 or May 30)

Internal Conversion from General Pre-Pharmacy to Early Assurance Status

Students in the general pre-pharmacy program who attain an overall GPA of 3.0 at the end of the first semester of the second pre-pharmacy year will be reviewed by ACPHS Pharmacy Admissions and Academic Standards Committee and may be offered an Early Assurance classification. These students are eligible for P1 admission without further application provided all progression requirements are met (see the following section for details).

PROGRESSION REQUIREMENTS FOR ADMISSION IN THE PHARM D PROGRAM

Early Assurance Student Progression

The following are required of early assurance students to receive automatic admission into the first professional year of the PharmD program.

- Remain in Good Academic Standing according to the College policies.
- The completion of the pre-pharmacy program with a cumulative overall GPA of 3.0 or higher.
- The completion of all required courses in the pre-pharmacy curriculum plus a minimum of 6 credits of electives. Required courses must be completed with a grade of C- or higher. There can be no unremediated course failures.
- Successful completion of an in-person interview, to take place during the 2nd pre-pharmacy year. The interview will include a face-to-face conversation with two faculty or staff members of the College.

- Completion of each section of the PCAT with a minimum score of 300 on all sections for students progressing to P1 in the fall of 2012 and 2013. Students progressing into P1 in the fall of 2014 or later are required to attain a composite score above the 20th percentile.
- Completion of the PCAT with a minimum Conventions of Language writing score of 3.0 or higher.
- Successful completion, at the student's expense, of a criminal background check. See details in the Pharmacy Admissions section of the catalog.

Early assurance students not meeting the criteria for automatic admission outlined above may apply to ACPHS Pharmacy Admissions and Academic Standards Committee for review of their academic credentials if they meet the minimum requirements below. Select students who have demonstrated strong PCAT test results and strong math/science pre-pharmacy course grades may be admitted into P1 through this process. Note that meeting the minimum requirements for this review does not guarantee acceptance into the P1 year. See the Policy for Review of Internal PharmD Students for Admission into P1 in the Student Handbook for details.

- The completion of the pre-pharmacy program with a cumulative overall GPA of 2.5 or higher.
- The completion of all required courses in the pre-pharmacy curriculum plus a minimum of 6 credits of electives. Required courses must be completed with a grade of C- or higher. There can be no unremediated course failures.
- Successful completion of an in-person interview, to take place during the 2nd pre-pharmacy year. The interview will include a face-to-face conversation with two faculty or staff members of the College.
- Completion of each section of the PCAT with a minimum score of 300 for students progressing to P1 in the fall of 2012 and 2013. Students progressing into P1 in the fall of 2014 or later are required to attain a composite score above the 20th percentile.
- Completion of the PCAT with a minimum Conventions of Language writing score of 2.0 or higher.
- Completion, at the student's expense, of a criminal background check. See details in the Pharmacy Admissions section of the catalog.

Pre-Pharmacy (non-Early Assured) Student Progression

Any BS HHS pre-pharmacy student who earns an overall cumulative GPA of ≥ 3.0 at the conclusion of the first semester of the second pre-pharmacy year (with all grades C- or higher) will be offered Early Assurance status for entry into the P1 year at ACPHS for the ensuing fall semester. Students will be notified of this change in status by the Pharmacy Admissions Office shortly after receipt of final transcripts at the end of fall semester. Any BS HHS pre-pharmacy student who is not offered early assurance at the end of the first semester of second year is welcome to apply for P1 admission through PharmCAS. These students will be reviewed by the ACPHS Pharmacy Admissions and Academic Standards Committee in accordance with procedures for the review of external transfer candidates. The PharmCAS application deadline is March 1.

Failure to progress to P1

Students in good academic standing at the College who are not admitted into P1 by any of the mechanisms above may be considered for other programs at ACPHS. Students who fail to meet the minimum standards required for Good Academic Standing or for progression into the P1 year will be notified of the decisions of the Academic Standing Committee in writing through the office of the Dean for Students and the Office of the Dean of the School of Pharmacy and Pharmaceutical Sciences, respectively.

Appeal Policy for Students with Extenuating Circumstances for Non-progression into P1

ACPHS students who have failed to meet all progression requirements *due to extenuating circumstances* may submit an appeal to the Academic Standing Appeals Committee for an extension of one year to repeat course work in the pre-pharmacy curriculum. In the event that extenuating circumstances are identified, appropriate documentation supporting the assertion by a competent, qualified professional must be included when applicable. The College reserves the right to require further evaluation.

If the appeal is granted, the Academic Standing Appeals Committee will work with the Dean of Students to develop a detailed academic plan of study for the ensuing academic year. The student would remain in the pre-pharmacy program during the remediation year and reapply for admission to the P1 year.

Students must accept the planned course of study for the appeal to be granted. A student will not be allowed to progress (or be admitted into P1) if progression requirements have not been met. The Pharmacy Admissions and Academic Standards Committee will re-evaluate the student after the one year period to determine if the student has successfully met the requirements for progression into the P1 year. Students who fail to meet the progression requirements after this one year extension may apply to other programs offered at ACPHS through the Policy for Internal Transfer.

See the Academic Regulations section for additional College-wide Academic Standards.

SCHOOL OF ARTS & SCIENCES FACULTY

DEAN

David W. Clarke, Ph. D.
Associate Professor

DEPARTMENT OF BASIC AND SOCIAL SCIENCES

Chair

David W. Clarke, Ph.D., Associate Professor

Sean Ali, Ph.D.
Instructor
Physics

Sara Almansberger, M.S.
Instructor
Chemistry

Paul Calarco, M.A.
Part-Time Instructor
Sociology

Anne Cioffi, R.D., M.S., C.D.N.
Part-Time Instructor
Nutrition/Health

David W. Clarke, Ph.D.
Associate Professor
Chemistry

AnnMarie Condes, M.A.
Instructor
Physics

Patricia DeAngelis, J.D.
Part-Time Instructor
Criminal Justice

Jim Doyle, Ph.D.
Instructor
Biology

Lynn Evans, Ph.D.
Assistant Professor
Psychology

Hue (Irene) Fan, M.A.
Instructor
Mathematics

Trent Gemmill, Ph.D.
Instructor
Organic Chemistry

Martha Hass, Ph.D.
Associate Professor
Organic Chemistry
Director of BS in Chemistry Program

Ellen Kennett, B.S., R.Ph.
Instructor
Biology

Yuri Kholodenko, Ph.D.
Associate Professor
Physics

Janet Krahn, M.S.
Instructor
Chemistry

Linda Lettko, Ph.D.
Instructor
Chemistry

Susan Ludeman, Ph.D.
Associate Professor
Organic Chemistry

Michael Malak, Ph.D.
Part-Time Instructor
Physics

Meenakshi Malik, D.V.M., Ph.D.
Assistant Professor
Microbiology

Sara Martin, M.S.
Part-Time Instructor
Criminal Justice

Amy Masi, M.S.
Instructor
Microbiology

Dudley Moon, Ph.D.
Professor
Biology

Wendy Parker, Ph.D., Assistant Professor
Sociology
Director of BS in Health and Human Sciences Program

Stephanie Pitzer, B.S.
Instructor
Biology

SCHOOL OF ARTS & SCIENCES FACULTY

DEPARTMENT OF BASIC AND SOCIAL SCIENCES

(Continued)

Michael Racz, Ph.D.
Assistant Professor
Statistics

Sunanda Sukumar, Ph.D.
Instructor
Chemistry

Eric Yager, Ph.D.
Assistant Professor
Microbiology

William Williams, Ph.D.
Part-Time Instructor
Physics

DEPARTMENT OF HUMANITIES AND COMMUNICATION

Interim Chair

Michael Pittman, Ph.D., Associate Professor

James Anderson, M.Div.
Assistant Professor
Humanities/Philosophy

Patricia Baia, Ph.D.
Assistant Professor
Curriculum and Instruction

Kenneth Blume, Ph.D.
Professor
Humanities/History

Margaret Lasch Carroll, Ph.D.
Associate Professor
Humanities/Literature

Ray Chandrasekara, Ph.D.
Associate Professor
Humanities/South and Southeast Asia

Fred Childs, Ph.D.
Associate Professor
Humanities/Philosophy

Paul Denvir, Ph.D.
Assistant Professor
Communication

Daniel d'Oney, Ph.D.
Associate Professor
Humanities/Native American History and Culture

Daniel Gremmler, M.A.
Part-Time Instructor
Communication

Kevin Hickey, Ph.D.
Associate Professor
Humanities/English and Africana Studies

Lynne Howell, M.S.
Part-Time Instructor
American Sign Language

Edward Knoblauch, M.A.
Part-Time Instructor
Humanities

Lisa Overholser, Ph.D.
Part-Time Instructor
Music

Michael Pittman, Ph.D.
Associate Professor
Humanities/Religion

Laura Rogers, D.A.
Instructor
Director of the Writing Center

Lisa Stanziano, M.S. Ed.
Part-Time Instructor
Spanish

Kandi Terry, M.S.
Part-Time Instructor
Political Science

Elizabeth Vines, Ph.D.
Associate Professor
Humanities/Art

SCHOOL OF HEALTH SCIENCES

ACCREDITATION:

The Clinical Laboratory Sciences program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

The Cytotechnology program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

Undergraduate Degree Programs

1. **Bachelor of Science in Biomedical Technology (HEGIS CODE 1223)**
 - Clinical Laboratory Sciences Concentration

Graduate Degree programs:

1. **Master of Science in Cytotechnology & Molecular Cytology (HEGIS CODE 1223)**
2. **Master of Science in Biotechnology (HEGIS CODE 1223)**
3. **Dual Bachelor of Science and Master of Science in Biotechnology/ Cytotechnology (HEGIS CODE 1223)**
4. **Master of Science in Health Outcomes Research (MSHR)**

BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY (BS BT)

Albany College of Pharmacy and Health Sciences' Biomedical Technology program, with its licensure-eligible concentrations in Clinical Laboratory Sciences and Cytotechnology, is designed to appeal to students with the curiosity and investigative drive to explore the many facets of human health.

Students in the Biomedical Technology program have a variety of options, depending on their personal interests. Students may elect to forego the two concentrations to pursue a course of study that emphasizes research and technology, earning what one faculty member describes as a "cutting-edge biomedical sciences degree."

The Clinical Laboratory Technologist program prepares students to perform a full range of laboratory analyses that are essential for the diagnosis and treatment of disease. These laboratory analyses are applicable to the fields of human and veterinary medicine, forensics, drug development and research.

The Biomedical Technology-Clinical Laboratory Sciences with specialty in early health care experiences provides a strong foundation in diagnostic laboratory sciences and preparation to pursue studies in post-baccalaureate medical professions and related post-graduate programs of study. Through this program, students may apply for early assurance to the MS in Physician Assistant Studies at Albany Medical College, as well as prepare for application to medical, veterinary, or graduate studies.

The Cytotechnology program prepares students to perform microscopic examinations of human cell samples in order to identify disease and help develop an effective course of therapy. The focus is on identifying cancer in its early stages in order to enhance the chances of successful treatment. The ACPHS Cytotechnology program is the largest one in the country and one of just two in New York State.

Pathways

Students in the Biomedical Technology program are well prepared for opportunities in research, graduate school and medicine. The combination of classroom instruction with training in laboratory applications and discovery is ideal for pursuing opportunities in fields such as Health Biometrics, Molecular Technology and Environmental and Medical Toxicology.

PROGRAMS OF STUDY:

- **CLINICAL LABORATORY SCIENCES (CLS) (BS BT)**
- **CLINICAL LABORATORY SCIENCES (CLS) – HEALTH CARE EXPERIENCE**
- **CYTOTECHNOLOGY**
- **HEALTH OUTCOMES RESEARCH**

BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY- CLINICAL LABORATORY SCIENCES (CLS) (BS BT)

The Albany College of Pharmacy and Health Sciences' bachelor degree in Biomedical Technology-Clinical Laboratory Sciences provides a strong foundation in diagnostic laboratory sciences. Graduates from this program will be well-prepared for entry-level careers in diagnostic laboratory medicine, forensics, biomedical research, as well as medical, veterinary and related post-graduate programs of study. The curriculum is designed to prepare students for licensure by the Office of the Professions of the New York State Education Department on completion of the Board of Registry Examination administered by the American Society of Clinical Pathology (ASCP).

I. Perform Clinical Laboratory Testing:

- A. Evaluate appropriateness and quality of laboratory specimens. Understand and perform procedures to handle inappropriate or poor quality specimens and efficiently resolve problems with specimens.
- B. Accurately and efficiently perform analytic analyses in all areas of the clinical laboratory (clinical chemistry, hematology, hemostasis, immunohematology, clinical microbiology, molecular diagnostics and immunology/serology).
- C. Perform and evaluate quality control and test results to assure accuracy of analyses.
- D. Evaluate test results with respect to working diagnosis or medical history in order to facilitate transmission of information to patient care staff and advise, if requested, on appropriate follow-up testing.
- E. Accurately enter and retrieve patient data and test results from the laboratory information system(s) and computerized/automated instrumentation.

II. Participate in the Daily Management of the Clinical Laboratory:

- A. Understand and properly follow all safety requirements within the laboratory and health care facility. These include, but are not limited to, chemical hygiene, blood-borne pathogens and radiation safety.
- B. Participate in cost analysis of new products or new testing modalities, including instrumentation and budget preparation.
- C. Evaluate new testing methods and instrumentation for accuracy, specificity, sensitivity and appropriateness to patient care.
- D. Understand the principles of human resource management.

III. Promote Public Health:

- A. Promote public awareness of health and disease.
- B. Understand the role of the laboratory in disaster management.
- C. Provide point-of-care screening testing for health fairs.

IV. Provide Laboratory Information and Education:

- A. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, other health care professionals and the public.
- B. Establish and maintain continuing education for self and others to maintain lifelong learning and professional competence.
- C. Provide leadership in educating other health care professionals on issues related to the clinical laboratory.
- D. Apply principles of educational methodology to training for laboratory professionals.

V. Understand the Health Care System and the Role of the Medical Laboratory:

- A. Demonstrate a working knowledge of the role of the regulatory agencies that oversee the clinical laboratory and of the regulations pertinent to the laboratory and the health care organization in which the laboratory resides.
- B. Understand the organizational structure of health care organizations and the role of the clinical laboratory in the provision of patient care.

BS BIOMEDICAL TECHNOLOGY – CLINICAL LABORATORY SCIENCES REQUIRED COURSES

Communications: 9 required credits

Principles of Communication (3)

Sophomore Seminar (3)

Senior Seminar in Biotechnology (3)

Humanities, Culture and Health: 12 required credits

The Pre-Modern World, The Modern World, The Contemporary World (3,3,3)

Psychology (3)

Basic Science Core: 30 required credits

General Biology (4,4)

General Chemistry (4,4)

Organic Chemistry (4,4)

Math and Statistics (3,3)

Biomedical Sciences Core: 47 required credits

Functional Anatomy (4)*

Good Laboratory Practices (2)

Medical Terminology (3)

Microbiology and Infectious Disease (4)

Biochemistry and Cell Biology (5)**

Biochemical and Cellular Techniques (2)**

Integrated Biomedical Sciences (5,5)

Immunology in Health and Disease (4)

Genetics and Molecular Basis of Disease (4)

Molecular Diagnostics (4)

Medical Ethics (3)

Clinical Laboratory Sciences Core: 34 required credits

Clinical Microbiology (4)

Clinical Hematology (3)

Clinical Immunology and Immunohematology (3)

Clinical Chemistry (3)

Laboratory Management and Education (3)

Clinical Practicum (18)

*For transfer students, Anatomy and Physiology I and II (4,4) may substitute for Functional Anatomy.

** For transfer students, individual Biochemistry and Cell Biology, inclusive of a laboratory, (4,4) may substitute for Biochemistry and Cell Biology and Biochemical and Cellular Techniques.

All incoming students participate in the Writing Assessment that is administered as part of the pre-registration process. The assessment is designed to direct students to the courses for which they are best prepared in the first year of the curriculum.

BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY

CLINICAL LABORATORY SCIENCES/ HEALTH CARE EXPERIENCE (PA) (BS BT)

The Albany College of Pharmacy and Health Sciences' bachelor degree in Biomedical Technology-Clinical Laboratory Sciences with specialty in early health care experiences provides a strong foundation in diagnostic laboratory sciences and preparation to pursue studies in post-baccalaureate medical professions and related post-graduate programs of study. Through this program, students may apply for early assurance to the MS in Physician Assistant Studies at Albany Medical College, as well as prepare for application to medical, veterinary, or graduate studies.

Required Courses and Sample Curriculum:

Providing courses in biotechnology to students completing the Clinical Laboratory Sciences concentration and those seeking post-baccalaureate careers in medical and laboratory disciplines.

Communications: 9 required credits

Principles of Communication (3)

Sophomore Seminar (3)

Senior Seminar in Biotechnology (3)

Humanities, Culture and Health: 12 credits

The Pre-Modern World, The Modern World, The Contemporary World (3,3,3)

Psychology (3)

Basic Science Core: 30 required credits

General Biology (4,4)

General Chemistry (4,4)

Organic Chemistry (4,4)

Math and Statistics (3,3)

Biomedical Sciences Core: 65 required credits

Functional Anatomy (4)*

Good Laboratory Practices (2)

Medical Terminology (3)

Microbiology and Infectious Disease (4)

Biochemistry and Cell Biology (5)**

Biochemical and Cellular Techniques (2)**

Integrated Biomedical Sciences (5,5)

Immunology in Health and Disease (4)

Genetics and Molecular Basis of Disease (4)

Molecular Diagnostics (4)

Medical Ethics (3)

Internship and/or directed electives (18)

Clinical Laboratory Sciences Core: 16 required credits

- Clinical Microbiology (4)
- Clinical Hematology (3)
- Clinical Immunology and Immunohematology (3)
- Clinical Chemistry (3)
- Laboratory Management and Education (3)

*For transfer students, Anatomy and Physiology I and II (4,4) may substitute for Functional Anatomy.

** For transfer students, individual Biochemistry and Cell Biology, inclusive of a laboratory, (4,4) may substitute for Biochemistry and Cell Biology and Biochemical and Cellular Techniques.

**SAMPLE BS IN BIOMEDICAL TECHNOLOGY – CLINICAL LABORATORY SCIENCES (CLS)
AND CLS- HEALTH CARE EXPERIENCE**

Year 1					
Fall Semester		Credits		Spring Semester	
BIO101	General Biology I	4	BIO102	General Biology II	4
CHE101	General Chemistry I	4	CHE102	General Chemistry II	4
MAT115	Introduction to Laboratory Data	2	MAT145	Elementary Statistics	3
HUM110	Pre-Modern World	3	HUM120	Modern World	3
	Elective	3	COM115	Principles of Communication	3
	Total	16		Total	17
Year 2					
Fall Semester		Credits		Spring Semester	
CHE211	Organic Chemistry I	4	CHE221	Organic Chemistry II	4
HUM210	Contemporary World	3	BHS230	Sophomore Seminar	3
BHS200	Good Laboratory Practices	2	BHS300	Biochemistry and Cell Biology	5
BHS225	Functional Anatomy	4	BHS310	Biochemical and Cellular Techniques	2
	Directed Elective	3	PSY201	Psychology	3
	Total	16		Total	17
Year 3					
Fall Semester		Credits		Spring Semester	
BHS250	Microbiology and Infectious Disease	4	BHS330	Integrated Biomedical Sciences III	5
BHS320	Integrated Biomedical Sciences II	5	BHS340	Immune System in Health and Disease	4
BMT411	Laboratory management and Education	3	CLS325	Clinical Microbiology	4
CLS305	Clinical hematology	3	CLS334	Clinical Immunology and Immunohematology	3
			CLS344	Clinical Chemistry	3
	Total	15		Total	19
Year 4					
Fall Semester		Credits		Spring Semester	
BHS350	Medical Ethics	3	BHS450	Senior Seminar in Biotechnology	3
BHS650	Genetics and Molecular Basis of Disease	4	BHS660	Molecular Diagnostics	4
CLS401	Practicum I*	9	CLS402	Practicum II*	9
	Total	16		Total	16

*Students in the CLS-Health Care Experience substitute with directed electives approved by the Program Director or Department Chair.

BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY- CYTOTECHNOLOGY

The Biotechnology-Cytotechnology program at ACPHS enables graduates to identify disease through the use of sophisticated testing and to help chart the course of treatment. The study of Cytotechnology is available to ACPHS' students through two options: the joint BS-MS Biotechnology-Cytotechnology Program and the graduate MS in Cytotechnology and Molecular Cytology. In both programs, students are provided with extensive training in the preparation and screening of specimens and other skills and expertise necessary for success in this dynamic field.

I. Provide Appropriate Patient Care

- A. Collaborate with colleagues, pathologists and other health care professionals to deliver optimum patient care.
- B. Gather and organize patient information and use this in conjunction with all cytologic specimens to formulate the best possible diagnosis for each and every patient.
- C. Accept or reject the specimen according to current accepted standards. Select and perform the most appropriate preparation and staining technique. Cover slip and label the specimen.
- D. Utilize the microscope to properly visualize the specimen with knowledge of proper use, care and troubleshooting of the microscope. Appropriately and effectively evaluate each microscopic slide using acceptable uniform examination techniques.
- E. For each of the following specimen types, students will be able to:
 - *Gynecological specimens:* Identify and discriminate among the following entities: specimen adequacy; cellular constituents within normal limits; cellular changes associated with infections; reactive and reparative cellular changes (including inflammation, effects of therapy, effects of mechanical devices, effects of DES exposure); epithelial squamous cellular abnormalities including atypical squamous cells of undetermined significance; low-grade and high-grade squamous intraepithelial lesions, squamous cell carcinoma; glandular cell abnormalities, including presence of endometrial cells, atypical glandular cells, adenocarcinoma in situ, adenocarcinoma endocervical or endometrial; non-epithelial malignant neoplasms; extra-uterine neoplasms; hormonal evaluation as appropriate.
 - *Respiratory tract specimen:* Identify and discriminate among the following entities: specimen adequacy; cellular constituents defined as no evidence of malignancy present; cellular changes associated with infections; reactive and reparative cellular changes (including inflammation, effects of therapy, effects of environmental agents and cellular appearance changes due to type of specimen); epithelial squamous cellular abnormalities including atypical squamous metaplastic cells, suspicious or positive for squamous cell carcinoma; glandular cell abnormalities including atypical bronchial cells, adenocarcinoma and its sub-types; non-epithelial malignant and low malignant potential neoplasms.
 - *Gastrointestinal or genital-urinary tract specimen:* Identify and discriminate among the following entities: specimen adequacy; cellular constituents defined as no evidence of malignancy present; cellular changes associated with infections; reactive and reparative cellular changes (including inflammation, effects of therapy, effects of environmental agents, cellular appearance changes due to type of specimen); epithelial squamous cellular abnormalities including atypical squamous metaplastic cells, suspicious or positive for squamous cell carcinoma; glandular cell abnormalities including atypical glandular or transitional cells, adenocarcinoma and its sub-types; Transitional Cell Carcinoma, non-epithelial malignant and low malignant potential neoplasms.
 - *Body cavity fluids and selected abdominal organ fine needle aspirate specimens:* Identify and discriminate among the following entities: specimen adequacy; cellular constituents defined as no evidence of malignancy present; cellular changes associated with infections; reactive and reparative cellular changes (including inflammation, effects of therapy, effects of environmental agents, cellular appearance changes due to type of specimen); epithelial malignancies differentiated from non-epithelial malignancies, primary differentiated from metastatic disease.

- *Head and neck fine needle aspirate specimens:* Identify and discriminate among the following entities: specimen adequacy; cellular constituents defined as no evidence of malignancy present; cellular changes associated with infections; reactive and reparative cellular changes (including inflammation, effects of therapy, effects of environmental agents, cellular appearance changes due to type of specimen); benign neoplastic processes, epithelial malignancies differentiated from non-epithelial malignancies, primary differentiated from metastatic disease.
- *Breast fine needle aspirate specimens and central nervous system, cerebral spinal fluid and miscellaneous cytology specimens:* Identify and discriminate among the following entities: specimen adequacy; cellular constituents defined as no evidence of malignancy present; benign and proliferative neoplastic processes, epithelial malignancies differentiated from non-epithelial malignancies.
- Detect, select and clearly mark the cells most representative of the nature of any pathological process and appropriately communicate this to the pathologist.
- Apply molecular diagnostic techniques and biomarkers in the diagnosis of infectious disease and cancer.

II. Manage/Coordinate and Organize the Cytopathology Service to Meet All State and Federal Regulations

- A. Apply principles of quality control.
- B. Identify and solve problems in staining and preparation techniques.
- C. Evaluate and implement new staining and preparation procedures.
- D. Prepare a report using a contemporary and uniform system of diagnostic terminology for gynecologic specimens (such as the Bethesda System or its equivalent).
- E. Review histologic tissue sections as a basis for interpreting cytologic specimens and use pertinent clinical data to build cognitive correlation between patterns of disease and their cellular manifestations for the purposes of quality control and quality assurance.
- F. Explain the principles of laboratory organization and management.
- G. Explain quality improvement measures as required by current regulations.
- H. Comply with all laboratory safety measures and regulations.
- I. Show awareness of the consequences of specimen evaluation on patient management.
- J. Demonstrate the value of recent advances in biotechnology to tissue-based diagnosis.

III. Promote the Public Health

- A. Demonstrate the knowledge of the ethical role and responsibilities of the cytotechnologist by practicing discretion and confidentiality in regard to all laboratory and patient information; honesty and integrity in professional duties; good personal relationships with peers, staff, faculty and the public.
- B. Promote public awareness of health and disease.

IV. Provide Information and Education

- A. Provide education on health-related topics, tailored to the needs and educational background of a given audience.
- B. Demonstrate the ability to read and critically evaluate published professional literature for its pertinence and reliability and explain the basic principles of the scientific method. This may be accomplished by research projects, journal club and seminar.
- C. Demonstrate the ability to independently plan and execute a research project with its application to advancing the profession and public health.

V. Describe the Different Components of the U.S. Health Care System and the Roles of the Cytotechnologist within it

ACADEMIC STANDARDS FOR UNDERGRADUATE PROGRAMS IN THE SCHOOL OF HEALTH SCIENCES

Students enrolled in a Bachelor of Science in Biotechnology (BSBT) program must meet the following academic standards. Concentrations may have more detailed requirements as described in the sections that follow below.

Biomedical Technology - Clinical Laboratory Sciences (CLS): Students in the CLS program must attain and maintain the college standard of semester and cumulative GPA of 2.0 in the first two years of the curriculum. In years three and four, (the professional years), students must maintain a semester and cumulative professional GPA of 2.5. Courses with a grade below C- must be remediated. A student that fails to meet these requirements may be placed on probation.

Biomedical Technology - Cytotechnology: In the first three years, students in the Cytotechnology program must meet the requirements for good academic standing of the College. In the 4th year, (professional year), a student may be placed on probation if one or more of the following conditions exist:

- Grade less than “B” on three consecutive tests in any format
- Grade less than “B” on two tests in one format
- Grade less than “B” on three consecutive weeks of classroom slide screening
- Grade less than “B” for any one clinical practicum

Any student on academic probation will be required to attend remedial sessions with the faculty of the program. Students who fail one of the two clinical practica will be given the option of repeating the practicum one time. No more than one clinical practicum may be repeated.

Academic Probation:

A student will be placed on probation if any of the following conditions exist:

- A semester or cumulative GPA below 2.0
- Two or more grades below C-
- A single grade of F

A student on academic probation must improve performance and meet the conditions of probation recommended by the Academic Standing Committee and administered by the Dean of students before being removed from academic probation. While on academic probation a student is ineligible for class and student organization office, joining a fraternity, participation in intercollegiate athletics and service on College committees. In some cases, financial aid may be jeopardized.

A student on academic probation will not be removed from academic probation until the student successfully completes a semester in good standing at ACPHS, either after or during the remediation of his/her deficiency as a fulltime student.

Academic Dismissal:

A student may be dismissed from the College if one of the following conditions exists:

- Two instances of probation (whether consecutive or non-consecutive)
- A semester GPA below 1.6

Academic dismissal usually is not invoked until academic probation has been imposed. However, academic dismissal may be recommended before probation when a student's academic record is significantly below average performance. Students who are academically dismissed from the College are not permitted to enroll in or attend courses at the College, or to earn credit toward degrees offered at ACPHS.

Academic Appeals

Students are permitted to appeal decisions made by the Academic Standing Committee. Appeal requests must be submitted in writing to the Dean of students. The letter should contain a statement referencing the original decision by the Academic Standing Committee and an explanation addressing why it is being appealed. The basis for such appeals should involve cases of unusual or extenuating circumstances that directly impacted the student's ability to meet the ACPHS' academic standards. In the event that extenuating circumstances are identified, appropriate documentation supporting the assertion by a competent, qualified professional must be included when applicable. The College reserves the right to require further evaluation. Deadlines for appeal are January 5 following the fall semester, June 5 following the spring semester and August 20 following the summer semester. While there are deadlines for student appeals, appeals are heard on a rolling basis by the Academic Standing Appeals Committee.

Readmission Policy

Individuals who have been dismissed from the college for *academic* reasons may apply for readmission. To be considered for readmission, the applicant must be away from the College for at least one semester and demonstrate academic success at an accredited college or university. Students must apply for readmission to the Undergraduate Admissions and Academic Standards Committee (UAASC) by December 31 (for spring semester reinstatement) and May 30 (for fall semester reinstatement). Applications must include: a completed application form, cover letter, transcripts and a letter of recommendation from the college or university attended. Upon review of the readmission package, UAASC may deny readmission, readmit the student, or readmit the student with conditions. Failure to meet the conditions of readmission will result in automatic dismissal from the College. A student dismissed from the College a second time will not be considered for readmission. *The College reserves the right to deny readmission to individuals who have been dismissed for academic reasons, regardless of whether or not minimal readmission criteria have been met.*

Minimum Requirements to Apply for Readmission

- Must be enrolled at an accredited College/University as a fulltime student (12 credits minimum) for at least 1 semester
- Must hold a minimum GPA of 2.0 (with no grades below a C)
- Must complete an application form
- Must provide a cover letter, transcripts and a letter of recommendation from the college or university attended.
- Must apply for readmission by designated due dates (Dec. 31 or May 30)

See the Academic Regulations section for additional College-wide Academic Standards.

TRANSFER STUDENTS INTO THE SCHOOL OF HEALTH SCIENCES

IMPORTANT DEADLINES FOR TRANSFER APPLICANTS:

FEBRUARY 1

Admission Priority Deadline

Free Application for Federal Student Aid (FAFSA) Due

INSTRUCTIONS FOR BACHELOR OF SCIENCE TRANSFER STUDENTS

To ensure full consideration and place in the incoming class, it is highly recommended that the completed application be submitted by the priority deadline of February 1. Applications for transfer admission into the second or third year of the Bachelor of Science programs will be accepted from students who have completed or plan to complete the required coursework, as long as space is available.

An application form must be completed and submitted to the College along with the required \$75 *non-refundable* application fee. The following materials also must be sent to the Office of Admissions:

- List of courses in progress and/or planned
- Official transcript from high school and each college attended
- One (1) letter of recommendation from a science teacher

Pending approval of the application, an interview will be required for admission. Applicants who have studied for fewer than 10 years where English is the language of instruction are required to submit scores from the Test of English as a Foreign Language (TOEFL) or the Test of Spoken English (TSE). A minimum score on the TOEFL of 474 paper-based (70% of the maximum score of 677), or 84 Internet-based (70% of the maximum score of 120); and a minimum of 50 on the TSE must be achieved to be considered for admission.

Once a student is notified of acceptance, a non-refundable deposit of \$400, along with the signed Enrollment Confirmation Form, will be required to reserve a place in the incoming class as long as space remains available. In the event that enrollment exceeds capacity, ACPHS reserves the right to return the admissions deposit on the date received. Failure to submit a final transcript and all required forms may result in the withdrawal of a student's acceptance. The College reserves the right to use a wait list for qualified students.

Required Coursework for 2nd Year Transfer Students into Bachelor of Science in Biomedical Technology Program:

General Biology	8 semester hours
General Chemistry	8 semester hours
English or Communications	6 semester hours
Liberal Arts electives	6 semester hours

Required Coursework for 2nd Year Transfer Students into Bachelor of Science in Health and Human Sciences Program:

General Biology	8 semester hours
General Chemistry	8 semester hours
English or Communications	6 semester hours
Liberal Arts electives	6 semester hours

Required Coursework for 3rd Year Transfer Students into the Bachelor of Science in Biomedical Technology (Clinical Laboratory Sciences Concentration):

General Biology (w/lab)	8 semester hours
General Chemistry (w/lab)	8 semester hours
Microbiology (w/lab)	4 semester hours
Anatomy & Physiology (w/lab)	8 semester hours
Organic Chemistry (w/lab)	4 semester hours
Biochemistry (w/lab)	4 semester hours
English or Communications	9 semester hours
Liberal Arts electives	6 semester hours
College Mathematics/Statistics	3 semester hours

Required Coursework for 3rd Year Transfer Students into the Bachelor of Science in Biomedical Technology (Cytotechnology Concentration):

General Biology (w/lab)	8 semester hours
General Chemistry (w/lab)	8 semester hours
Microbiology (w/lab)	4 semester hours
Anatomy and Physiology (w/lab)	8 semester hours
Organic Chemistry (w/lab)	4 semester hours
English or Communications	9 semester hours
Liberal Arts electives	6 semester hours
College Mathematics/Statistics	3 semester hours

Liberal Arts electives include art, music, sociology, history, psychology, anthropology, foreign language, political science, economics and English. Other electives include any course that is not required in the standard curriculum list above.

Directed electives are courses selected with the help of an academic advisor that further the student's career goals. Directed electives include cell biology, immunology, microbiology, histology, genetics, hematology, clinical microbiology, immune-hematology, clinical immunology, pharmacology II, pharmacology III, pharmacology IV, biopharmaceutics, bioorganic chemistry, drug discovery and development, advanced immunology, drug design and synthesis, plant biochemistry and phytomedicinals, clinical chemistry, US and Global Health Care Systems, pharmacy administration, pharmacoeconomics and health policy, independent study and others, with the approval of the program director.

No credit will be accepted for grades lower than "B" (B- is not acceptable) or for physical education courses. Pass/Fail credits will be granted only for first-year courses and/or liberal arts electives. ACPHS reserves the right to refuse the transfer of any previously earned college credits.

SCHOOL OF HEALTH SCIENCES GRADUATE DEGREE PROGRAMS

BIOTECHNOLOGY:

The Albany College of Pharmacy and Health Sciences' master degree in Biotechnology provides students a foundation in molecular technology and research in the biomedical sciences, as well as in medical diagnostics.

CYTOTECHNOLOGY AND MOLECULAR CYTOLOGY:

The Albany College of Pharmacy and Health Sciences' master degree in Cytotechnology and Molecular Cytology provides students a biomedical and clinical foundation for the preparation and screening of specimens for cell- and molecular-based disease diagnosis.

MASTER OF SCIENCE IN HEALTH OUTCOMES RESEARCH (MSHR)

The Albany College of Pharmacy and Health Sciences' master degree in Health Outcomes Research involves post graduate coursework with 30 credit hours of educational instruction and 6 credit hours of thesis research in health outcomes.

DUAL GRADUATE AGREEMENTS:

If a student is interested in pursuing a graduate degree not offered at ACPHS, the College has collaborative agreements with Albany area institutions that can help ease the admissions process. For example, if a student is accepted into our Early Assurance program with Albany Medical College, he/she will have a guaranteed seat in medical school following graduation and will not be required to take the MCATs.

All students in our bachelor's programs have the option to pursue Pre-Med or Pre-Physician Assistant options with Albany Medical College. Bachelor's students may also select the Pre-Law option with Albany Law School, whereby they can receive their bachelor's degree and a law degree in six years instead of seven. The campuses of the Medical College and the Law School are virtually adjacent to ACPHS, making it easy to attend classes at either institution.

Both Pharm.D. and B.S. students may also pursue an MBA through Union Graduate College in Schenectady.

MASTER OF SCIENCE IN BIOTECHNOLOGY (MSBT)

The Albany College of Pharmacy and Health Sciences' master degree in Biotechnology provides students a foundation in molecular technology and research in the biomedical sciences, as well as in medical diagnostics. The program is designed for students with an earned BS or BA with satisfactory completion of prerequisites as determined by the Program Director. The curriculum allows flexibility to meet the needs of both licensed laboratory professions (e.g., MT, CT) desiring training in Molecular Diagnostics, and the research-minded scientist. This is a research-based program with a focus on medical applications and developments in biotechnology. Graduates are prepared to pursue careers in molecular diagnostics, biomarker discovery and validation, forensic sciences, pharmacology research, oncology research, chemical safety and toxicology.

The program allows open and part-time enrollment depending on the student needs and interests. Licensed laboratory professionals enrolled in the program may qualify for certification in Molecular Biology (MB) from the American Society of Clinical Pathology (ASCP).

MS Biotechnology Required Courses

Sample Biotechnology Core: 36 required credits

Cellular Pathophysiology and Histology I and II (3,3)*

Genetics and Molecular Basis of Disease (4)

Research Methods and Statistics (3)

Advanced Good Laboratory Practices and Laboratory Management (3)

Medical Ethics and Research (3)

Digital Imaging and Morphometrics (4)*

Molecular Diagnostics (4)

Advanced Topics in Biotechnology (3)**

Thesis I and II (3,3)

*For students, other than licensed cytotechnologists, these courses may be substituted for with college-wide graduate courses on approval of the Program Director.

** BHS690 may be substituted for by an approved elective numbered 700 or higher.

SAMPLE MS IN BIOTECHNOLOGY

	Semester 1	Credits		Semester 2	Credits
	Elective I*	3		Elective II*	3
BHS630	Advanced Good Laboratory Practices and Laboratory Management	3	BHS660	Molecular Diagnostics	4
BHS640	Medical Ethics and Research	3	BHS680	Research Methods and Statistics	3
BHS650	Genetics and Molecular Basis of Disease	4	BHS701	Master's Thesis I	3
	Total	13		Total	13

	Semester 3	Credits	
BHS670	Elective III*	4	
BHS690	Advanced Topics in Biotechnology**	3	
BHS702	Master's Thesis II	3	
BHS800	Thesis Defense	0	
	Total	10	

*For students who are licensed cytotechnologists, Cellular Pathophysiology and Histology I and II and Digital Imaging and Morphometrics are taken.

** BHS690 may be substituted for by an approved elective numbered 700 or higher.

MASTER OF SCIENCE IN CYTOTECHNOLOGY AND MOLECULAR CYTOLOGY (MSCM)

The Albany College of Pharmacy and Health Sciences' master degree in Cytotechnology and Molecular Cytology provides students a biomedical and clinical foundation for the preparation and screening of specimens for cell- and molecular-based disease diagnosis. The program is designed for students with an earned BS or BA with satisfactory completion of prerequisites in basic sciences to meet NYSED licensure requirements based on evaluation of transcripts from an accredited institution. Graduates from this program will be well-prepared for entry-level careers in diagnostic laboratories, biomedical research, as well as further graduate studies. The curriculum is designed to prepare students for licensure by the Office of the Professions of the New York State Education Department on completion of the Board of Registry Examination administered by the American Society of Clinical Pathology (ASCP). Students certified in Cytotechnology (CT) may qualify for certification in Molecular Biology (MB).

Licensure Pre-requisites in Basic and Biomedical Sciences in New York State

Coursework inclusive of a laboratory component, where applicable, in:

- Inorganic chemistry
- Anatomy and Physiology
- Cell Biology
- Organic Chemistry
- Mathematics and Statistics
- Infection control and universal precautions (standard precautions)*
- Human Genetics*
- Immunology
- Clinical microbiology
- Maintenance of equipment and records*
- Ethics*

*These requirements are satisfied within the MS Curriculum. Other deficits may be satisfied while completing the MS Program at ACPHS and prior to sitting for the Board of Registry examination.

MS Cytotechnology and Molecular Cytology Required Courses

Cytotechnology Core: 30 required credits

Introduction to Cytopathology (1)
Cytopathology of Female Genital Tract (4)
Exfoliative Non-Gynecologic Cytopathology I and II (2,2)
Cytopreparatory Techniques I and II (1,1)
Fine Needle Aspiration Cytology I and II (3,3)
Liquid Based GYN Cytology (1)
Clinical practicum I and II (6,6)

Biotechnology Core: 36 required credits

Cellular Pathophysiology and Histology I and II (3,3)
Genetics and Molecular Basis of Disease (4)
Research Methods and Statistics (3)
Advanced Good Laboratory Practices and Laboratory Management (3)
Medical Ethics and Research (3)
Digital Imaging and Morphometrics (4)
Molecular Diagnostics (4)
Advanced Topics in Biotechnology (3)
Thesis I and II (3,3)

SAMPLE MS IN CYTOTECHNOLOGY AND MOLECULAR CYTOLOGY

Year 1					
	Fall Semester	Credits		Spring Semester	Credits
CYT500	Introduction to Cytopathology	1		CYT530 Exfoliative Non-Gynecologic Cytopathology II	2
CYT510	Cytopathology of Female Genital Tract	4		CYT550 Cytopreparatory Techniques II	1
CYT520	Exfoliative Non-Gynecologic Cytopathology I	2		CYT560 Fine Needle Aspiration Cytology I	3
CYT540	Cytopreparatory Techniques I	1		CYT570 Fine Needle Aspiration Cytology II	3
BHS610	Cellular Pathophysiology and Histology I	3		CYT580 Liquid Based GYN Cytology	1
BHS650	Genetics and Molecular Basis of Disease	4		BHS620 Cellular Pathophysiology and Histology II	3
				BHS680 Research Methods and Statistics	3
	Total	15		Total	16

Year 1			
	Summer Semester	Credits	
BHS630	Advanced Good Laboratory Practices and Laboratory Management	3	
BHS640	Medical Ethics and Research	3	
BHS670	Digital Imaging and Morphometrics	4	
	Total	10	

Year 2					
	Fall Semester	Credits		Spring Semester	Credits
CYT590	Clinical Practicum I	6		CYT600 Clinical practicum II	6
BHS660	Molecular Diagnostics	4		BHS690 Advanced Topics in Biotechnology*	3
BHS701	Master's Thesis I	3		BHS702 Master's Thesis II	3
				BHS800 Thesis Defense	0
	Total	13		Total	12

*BHS690 may be substituted for by an approved elective numbered 700 or higher.

DUAL BACHELOR OF SCIENCE AND MASTER OF SCIENCE IN BIOTECHNOLOGY-CYTOTECHNOLOGY (BMBC)

Required Courses and Sample Curriculum

The Albany College of Pharmacy and Health Sciences' five-year dual bachelor and master degree in Biotechnology/Cytotechnology provides students with a basic, biomedical and clinical foundation for the preparation and screening of specimens for cell- and molecular-based disease diagnosis. Graduates from this program will be well-prepared for entry-level careers in diagnostic laboratories, biomedical research, as well as related post-graduate programs of study. The curriculum is designed to prepare students for licensure by the Office of the Professions of the New York State Education Department on completion of the Board of Registry Examination administered by the American Society of Clinical Pathology (ASCP). Students certified in Cytotechnology (CT) may qualify for certification in Molecular Biology (MB). Based on evaluation of transcripts from an accredited institution, students may transfer into the joint program up to the senior year. Students must complete the joint program to be awarded their degrees.

BS/MS Biotechnology/Cytotechnology Required Courses

Communications: 9 required credits

Principles of Communication (3)

Sophomore Seminar (3)

Senior Seminar in Biotechnology (3)

Humanities, Culture and Health: 12 credits

The Pre-Modern World, The Modern World, The Contemporary World (3,3,3)

Psychology (3)

Basic Science Core: 30 required credits

General Biology (4,4)

General Chemistry (4,4)

Organic Chemistry (4,4)

Math and Statistics (3,3)

Biomedical Sciences Core: 37 required credits

Functional Anatomy (4)*

Good Laboratory Practices (2)

Medical Terminology (3)

Microbiology and Infectious Disease (4)

Biochemistry and Cell Biology (5)**

Biochemical and Cellular Techniques (2)**

Integrated Biomedical Sciences (5,5)

Immunology in Health and Disease (4)

Clinical Laboratory Sciences Core: 6 required credits

Clinical Immunology & Immunoematology (3)

Laboratory Management and Education (3)

Cytotechnology Core: 30 required credits

Introduction to Cytopathology (1)

Cytopathology of Female Genital Tract (4)

Exfoliative Non-Gynecologic Cytopathology I & II (2,2)

Cytopreparatory Techniques I and II (1,1)

Fine needle aspiration cytology I and II (3,3)

Liquid Based GYN Cytology (1)

Clinical practicum I and II (6,6)

Biotechnology Core: 36 required credits

Cellular Pathophysiology & Histology I & II (3,3)

Genetics and Molecular Basis of Disease (4)

Research Methods and Statistics (3)

Advanced Good Laboratory Practices and Laboratory Management (3)

Medical Ethics and Research (3)

Digital Imaging and Morphometrics (4)

Molecular Diagnostics (4)

Advanced Topics in Biotechnology (3)

Thesis I and II (3,3)

*For transfer students, Anatomy and Physiology I and II (4,4) may substitute for Functional Anatomy.

** For transfer students, individual Biochemistry and Cell Biology, inclusive of a laboratory, (4,4) may substitute for Biochemistry and Cell Biology and Biochemical and Cellular Techniques.

SAMPLE BS/MS IN BIOTECHNOLOGY - CYTOTECHNOLOGY

Year 1					
	Fall Semester	Credits		Spring Semester	Credits
BIO101	General Biology I	4	BIO102	General Biology II	4
CHE101	General Chemistry I	4	CHE102	General Chemistry II	4
MAT115	Introduction to Laboratory Data	2	MAT145	Elementary Statistics	3
HUM110	Pre-Modern World	3	HUM120	Modern World	3
	Elective	3	COM115	Principles of Communication	3
	Total	16		Total	17
Year 2					
	Fall Semester	Credits		Spring Semester	Credits
CHE211	Organic Chemistry I	4	CHE221	Organic Chemistry II	4
HUM210	Contemporary World	3	BHS230	Sophomore Seminar	3
BHS200	Good Laboratory Practices	2	BHS300	Biochemistry and Cell Biology	5
BHS225	Functional Anatomy	4	BHS310	Biochemical and Cellular Techniques	2
	Directed Elective	3	PSY201	Psychology	3
	Total	16		Total	17

SAMPLE BS/MS IN BIOTECHNOLOGY - CYTOTECHNOLOGY

Year 3					
Fall Semester			Spring Semester		
		Credits			Credits
BHS201	Medical Terminology	3	BHS330	Integrated Biomedical Sciences III	5
BHS250	Microbiology and Infectious Disease	4	BHS340	Immune System in Health and Disease	4
BHS320	Integrated Biomedical Sciences II	5	CLS334	Clinical Immunology and Immunohematology	3
BHS411	Laboratory management and Education	3		Elective	3
	Total	15		Total	15
Year 4					
Fall Semester			Spring Semester		
		Credits			Credits
CYT500	Introduction to Cytopathology	1	CYT530	Exfoliative Non-Gynecologic Cytopathology II	2
CYT510	Cytopathology of Female Genital Tract	4	CYT550	Cytopreparatory Techniques II	1
CYT520	Exfoliative Non-Gynecologic Cytopathology I	2	CYT560	Fine Needle Aspiration Cytology I	3
CYT540	Cytopreparatory Techniques I	1	CYT570	Fine Needle Aspiration Cytology II	3
BHS610	Cellular Pathophysiology and Histology I	3	CYT580	Liquid Based GYN Cytology	1
BHS650	Genetics and Molecular Basis of Disease	4	BHS620	Cellular Pathophysiology and Histology II	3
			BHS680	Research Methods and Statistics	3
	Total	15		Total	16
Year 4					
Summer Semester					
		Credits			
BHS630	Advanced Good Laboratory Practices and Laboratory Management	3			
BHS640	Medical Ethics and Research	3			
BHS670	Digital Imaging and Morphometrics	4			
	Total	10			
Year 5					
Fall Semester			Spring Semester		
		Credits			Credits
CYT590	Clinical Practicum I	6	CYT600	Clinical Practicum II	6
BHS660	Molecular Diagnostics	4	BHS690	Advanced Topics in Biotechnology*	3
BHS701	Master's Thesis I	3	BHS702	Master's Thesis II	3
			BHS800	Thesis Defense	0
	Total	13		Total	12

*BHS690 may be substituted for by an approved elective numbered 700 or higher.

MASTER OF SCIENCE IN HEALTH OUTCOMES RESEARCH (MSHR)

The Albany College of Pharmacy and Health Sciences' Master of Science in Health Outcomes Research involves post graduate coursework with 30 credit hours of educational instruction and 6 credit hours of thesis research in health outcomes. A diverse number of factors influence the favorable outcome resulting from protective measures, whether policies, diagnostics, medical intervention, socioeconomics, demographics and health status. These include:

- Effective identification of etiological factors and risk (e.g. infectious and chemical agents, including drugs, genomics);
- Effective and early prediction/diagnosis of disease exposure, risk, effects and efficacy, even in absence of overt clinical signs (biomarkers);
- Effective evaluation of economic, clinical, and social/humanistic outcomes of medical interventions or societal challenges to health outcome success;
- Effective management of medical data at the point source of its generation to implement effective prevention and educational communication;
- Effective synthesis of information leading to personalized therapy and prognostic predictions; and
- Effective communication of health-related information to the lay public.

The **MS in Health Outcomes Research** provides a unique opportunity and skill set to those interested in an integrative interdisciplinary approach in understanding, influencing and insuring successful protection of humans through early detection of risk, diagnosis of disease and dissemination of information. Through carefully crafted **areas of emphasis** that build on the student's undergraduate (Biomedical and Social Sciences), professional (Pharmacy and Medicine) and employment (current Health Professionals) experience, the wide spectrum of clinical, preventive and personalized medicine, decision making and policy are effectively integrated and explored. Applications include:

- **Biometrics, Biomarkers and Bioinformatics**
- **Epidemiology, Public Health, Policy, Leadership**
- **Health Economics, Management and Informatics**

Master of Science in Health Outcomes Research (MSHR): Core Courses (21)

Epidemiology and Statistics (3)

Experimental Design and Research Methods (3)

Issues in Global Health (3)

Current Issues in Health Research (3)

Medical Ethics (3)

Thesis I-II (6)

Sample Directed Electives (15)

Pharmacogenomics and Personalized Medicine (2)

Health Leadership and Professional Development (3)

Introduction to Health Care Management (3)*

Global Issues in Environmental Medicine (3)

Disease and Social Perception (3)

Environmental Health (3)

Health Economics (3)*

Health Informatics (3)*

Evidence-Based Medicine (3)

Data Bases and Data Mining (3)

Biomarkers (3)

SAMPLE MASTER OF SCIENCE IN HEALTH OUTCOMES RESEARCH CURRICULUM

Year 1					
Fall Semester		Credits	Spring Semester		Credits
HRI 600	Issues in Global Health (3)	3	BHS 810	Epidemiology and Statistics	3
HRI 610	Experimental Design and Research Methods	3	HRI 630	Directed Elective: Disease and Social Perception	3
BHS 640	Medical Ethics	3		Introduction to Health Care Management*	3
BHS 820	Directed Elective: Pharmacogenomics	2			
	Total	11		Total	9

Year 2					
Fall Semester		Credits	Spring Semester		Credits
	Directed Elective	3		Current Issues in Health Research (Seminar)	3-4
	Directed Elective	3	HRI 702	Thesis II	3
HRI 701	Thesis I	3			
	Total	9		Total	6-7

*Provided by UGC at this time.

ACADEMIC STANDARDS FOR SCHOOL OF HEALTH SCIENCES GRADUATE PROGRAMS

Students enrolled in the Master of Science (MS) in Biotechnology, MS in Cytotechnology and Molecular Cytology must adhere to the following academic standards:

GPA and grade requirements:

Graduate students must maintain a cumulative GPA of 3.0 or higher to be considered in good academic standing. Students enrolled in a thesis program must also demonstrate satisfactory progress in thesis research as documented by recommendations from the thesis advisor and the grades of related courses to be considered in good academic standing. Students must earn a grade of B or better in all required graduate courses.

Probation:

A student will be placed on academic probation if his/her cumulative GPA falls below 3.0 or if he/she has not made satisfactory progress towards completion of the degree. A recommendation for probation due to unsatisfactory progress may be initiated by the student's advisor if the advisor considers a student's performance to be unsatisfactory irrespective of a student's grade-point average. The decision to place a student on probation will be made by the Graduate Academic Standing Committee of the ACPHS Graduate Council.

Removal from Probation:

A student placed on probation due to a cumulative GPA below 3.0 must restore their GPA to 3.0 or above within two semesters for full-time students or 12 credit hours for part-time students to be removed from probation. Students placed on academic probation due to unsatisfactory progress may be restored to good academic standing following notification by the advisor /Program Director that the student is making satisfactory progress to the Graduate Academic Standing Committee. Such notification must be received within two regular academic semesters. A student who is not restored to good academic standing by end of the specified time or credit hour requirement will be dismissed from the program.

Dismissal:

A student may be dismissed from a graduate program for any of the following reasons: (a) Failure of a student on probation due to a GPA less than 3.0 or unsatisfactory progress to achieve good academic standing within the specified time or credit hour requirement; (b) Repeated failure of the thesis defense or, for students enrolled in a non-thesis option, repeated failure of the culminating experience or special project; (c) Failure to meet published Programmatic, Departmental or College requirements; (d) A recommendation of dismissal under the ACPHS Student Disciplinary or Honor Code; (e) Receiving F grade in any required graduate courses.

Appeal of dismissal:

A student who has been dismissed from a graduate program may appeal to the Dean of Graduate Studies for reinstatement. The appeal must be made in writing within 14 consecutive days after receipt of the notice of dismissal. The appeal will be reviewed by the Graduate Academic Standards Appeals Committee appointed by the Dean. The Dean will review the appeal and recommendation from the Graduate Academic standards Appeals Committee. The decision of the Dean is final and will be communicated in writing to the student, the Graduate Academic Standards Appeals Committee, the Graduate Academic Standards Committee, the academic advisor, the Program Director, and the Registrar.

Requirements for full-time enrollment status:

A full-time graduate student is defined as one who is taking 9 or more credit hours during the spring and fall semester. For students enrolled in a thesis based program who have completed all didactic course work and are enrolled solely in a thesis research course, full-time status is defined as a minimum of one (1) credit hour per semester.

Time duration to complete graduate degrees:

All requirements for a Master of Science degree must be completed within three calendar years for full-time students and not more than seven years, for part-time students. Students who fail to complete requirements for a graduate degree within the specified time period will be dismissed from the program. A student may petition for a time extension. The petition must include a plan for completion of the degree and letters of support from the faculty advisor and Program Director and must be approved by the Dean of Graduate Studies.

Expiration of graduate courses:

Graduate courses are valid for no more than seven years. Students will be required to repeat courses completed more than seven years before finishing the requirements for a degree.

Transfer credits:

Up to nine (9) credit hours of graduate level didactic credit may be transferred from other accredited academic institutions subject to approval by the Program Director. Transfer courses must have a grade of B- or higher. Courses taken on a pass/fail basis will not be considered for transfer. Credits earned from other institutions will be subject to the same seven year expiration rule as for courses taken at ACPHS.

See the Academic Regulations section for additional College-wide Academic Standards.

SCHOOL OF HEALTH SCIENCES FACULTY

DEAN

Hassan A. N. El-Fawal, Ph.D., Professor

Indra Balachandran, Ph.D., SCT, CFIAC
Associate Professor &
Director, Cytotechnology Program

Arlixer M. Coleman, Ph.D.
Assistant Professor & Education Coordinator, Cytotechnology

Catherine Eldred, B.S.
Instructor

Lawrence Lansing, M.D.
Assistant Professor

Dalia Fawzy Labib Eldeiry, M.D.
Medical Director, Cytotechnology Program

Amanda Phillips, MLS(ASCP)^{CM}
Instructor

Binshan Shi, Ph.D.
Assistant Professor
Molecular Diagnostics

Markus Stein, Ph.D.
Assistant Professor
Microbiology

M. Elyse Wheeler, Ph.D., MT (ASCP)
Associate Professor & Director, Clinical Laboratory Science Program

SCHOOL OF PHARMACY AND PHARMACEUTICAL SCIENCES

ACCREDITATION:

The Doctor of Pharmacy program is accredited by the Accreditation Council for Pharmacy Education (ACPE).

Undergraduate Degree programs:

- 1. Doctor of Pharmacy (Pharm. D.) program (HEGIS CODE 1211)**
 - Doctor of Pharmacy (Albany and Vermont Campuses)
- 2. Bachelor of Science Degree in Pharmaceutical Sciences (HEGIS CODE 1211)**
 - Pharmaceutics Concentration
 - Pharmacology Concentration
 - Pharmaceutical Marketing & Regulatory Science

Graduate Degree programs:

- 1. Master of Science in Pharmaceutical Sciences (HEGIS CODE 1211)**
 - Pharmaceutics Concentration
 - Pharmacology Concentration
- 2. Dual Bachelor of Science and Master of Science in Pharmaceutical Sciences (HEGIS CODE 1211)**

UNDERGRADUATE DEGREE PROGRAMS

DOCTOR OF PHARMACY

The Doctor of Pharmacy (Pharm.D.) program at ACPHS provides an education that allows a student to connect scientific, professional and personal interests into a rewarding career. Part of what makes our Doctor of Pharmacy program special is the vast array of faculty, who “practice what they teach.” In addition to their classroom and research work, many of the faculty members in the program are active practitioners/clinicians who maintain a clinical practice, which means they are able to keep up with the latest developments in patient care and share that information with students. These faculty also teach and mentor students at their practice sites, so students can watch and learn from the experts.

Our didactic curriculum utilizes active learning pedagogy to allow students to achieve mastery of concepts related to the practice of pharmacy. Active learning is a big part of the didactic curriculum in the Doctor of Pharmacy program. Our Integrated Problem Solving Workshops are one example of this pedagogy that contributes to the learning environment by providing an opportunity to utilize and practice material from all classes each semester in an atmosphere that promotes discussion and peer group communication integrating coursework with real world problem solving scenarios. Students find these workshops to be a place where they can bring up questions they may not otherwise have asked in an environment that fosters mastery of the subject matter. The Pharmacy Skills Lab Sequence, like the IPS workshops, is present in each didactic semester of coursework throughout the curriculum. The Skills Lab Sequence accomplishes pharmacy skill building that encompasses areas of compounding to advanced counseling and communication techniques when speaking with patients, as well as other healthcare providers.

CURRICULAR OUTCOMES FOR THE DOCTOR OF PHARMACY PROGRAM

A. Values and Ethical Principles

1. The student will use relevant legal, ethical, cultural, social, economic, and professional information to solve problems and make decisions
2. The student will demonstrate sensitivity to and tolerance of cultural diversity in all interactions and settings
3. The student will be socially responsible by participating in community outreach and volunteering
4. The student will demonstrate compassion, integrity, respect, accountability and dependability in all interactions and setting with patients, supervisors, colleagues and other professionals

B. Professionalism

1. The student will demonstrate leadership skills, professional attitudes, behaviors, and values commensurate with public expectations of professionalism for student pharmacists
2. The student will be committed to the advancement of the profession through participation in and support of professional organizations, activities and events, and will be a good steward of the profession to the public

C. Knowledge, Skills and Thinking Abilities

1. The student will demonstrate an interdisciplinary understanding of the biochemical, biological, physiological, pharmaceutical, pharmacokinetic, and pharmacological processes important in health and disease.
2. The students will be able to search, analyze, and interpret professional and scientific literature to obtain additional information on relevant health and disease processes.
3. The student will use critical thinking, problem solving, and quantitative reasoning for integration of the acquired knowledge into a theoretical basis for individualized disease management.
4. The student will learn practical skills in preparation, compounding, dispensing and monitoring of medications.

D. Patient Centered Care

1. The student will provide patient centered care to all patients, including special patient populations, based on relevant clinical evidence, to optimize the patient's health outcomes
2. The student will collaborate within the profession with other pharmacists, as well as with patients, prescribers, and other members of an inter-professional health care team to optimize drug therapy outcomes and make sound therapeutic recommendations
3. The student will identify, interpret, and evaluate patient information to determine the presence of a disease, medical condition or medication related problem, assess the need for treatment and/or referral, and identify patient-specific factors that affect health, pharmacotherapy, and/or disease management
4. The student will design, implement, monitor, evaluate, and adjust pharmaceutical care plans that are patient-specific, evidence-based and take into account legal, ethical, social, and economic information to achieve optimal outcomes and promote patient awareness and responsibility for their health
5. The student will ensure the appropriate preparation, compounding, dispensing and monitoring of medication(s) prescribed as part of the patient's care plan, using pharmaceutical calculations, pharmacokinetic data, pharmacogenetics and in accordance with legal, ethical, social, economic, and professional guidelines
6. The student will integrate previous professional knowledge with lay, scientific and professional literature to provide drug information and counseling to patients, their families or care givers, and other members of the health care team.

E. Public Health

1. The student will promote health improvement, wellness, disease prevention and emergency preparedness
2. The student will work as part of an interprofessional team of health care providers to provide care to patients, communities and at-risk populations
3. The student will apply population-specific data, quality assurance strategies, informatics and research processes to identify and solve public health problems and develop public health policy

F. Systems Managements

1. The student will manage human, physical, medical, informational, and technological resources to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive pharmacy services; and to improve therapeutic outcomes of medication use
2. The student will work with patients, the healthcare team, and administrative and supportive personnel to engender a team approach to assure efficient, cost-effective use of resources in the provision of patient centered care
3. The student will manage medication use systems by applying patient- and population-specific data, quality assurance strategies, medication safety, error reduction and research processes to optimize patient outcomes

G. Communication

1. The student will use effective verbal and written communication skills to listen to, provide counseling and education, assess health literacy, and communicate with patients, caregivers, physicians, nurses, other health care providers, policy makers, members of the community and administrative and supportive personnel
2. The student will choose strategies and media that are appropriate to the purpose of the communicative interaction and to the ideas, values, health literacy, and background of the audience to provide patient care, medication counseling, or education on health-related topics

H. Continual Professional Development

1. The student will be responsible for his or her personal and professional learning goals by determining areas of deficiency and/or interest, establishing learning goals, developing strategies to promote intellectual growth, engaging in appropriate learning activities and using reflection and other data to maintain the process of continual professional development
2. The student will develop and maintain professional competence by identifying and analyzing emerging issues, products and services

DOCTOR OF PHARMACY: REQUIRED COURSES IN P1-P4

Biological Sciences: 17 required credits

Biochemistry (3)
Molecular Biology (3)
Immunology (3)
Physiology/Pathophysiology I and II (4,4)

Pharmaceutical Sciences: 8 required credits

Pharmaceutics I and II (3,3)
Principles of Pharmacology and Medicinal Chemistry Module (2)

Clinical Sciences and Pharmacy Practice: 36 required credits

Foundations of Pharmacy (1)
Integrated Problem-Solving Workshops I-V (5 credits total)
Self-care & Over-the-Counter Medicines (3)
Pathophysiology, Therapeutics, Pharmacology, and Medicinal Chemistry modules (23 credits total)
Pharmacy Skills Labs I-VI (6 credits total)
Drug Information and Biostatistics (2)
Scientific Literature Evaluation (1)
Jurisprudence (3)
Immunizations (1)
Integrative and Alternative Medicine Module (1)
Complex Patient Cases (3)

Administrative and Social Sciences: 9 required credits

US and Global Healthcare Systems (3)
Pharmacoeconomics and Health Policy (3)
Pharmacy Administration (3)

Humanities, Culture Health, and Ethics: 3 required credits

Healthcare and Human Values (3)

Experiential Education: 44 credits

Community Pharmacy Introductory Pharmacy Practice Experience (3)
Public Health Introductory Pharmacy Practice Experience (1)
Patient Assessment Introductory Pharmacy Practice Experience (1)
Institutional Pharmacy Introductory Pharmacy Practice Experience (3)
Advanced Pharmacy Practice Experiences (36 credits total)

Electives: 15 credits

DOCTOR OF PHARMACY PROFESSIONAL CURRICULAR GRID

Professional Year 1 (P1)			
Fall Semester	Credits	Spring Semester	Credits
Pharmaceutics I	3	Pharmaceutics II	3
Physiology /Pathophysiology I	4	Physiology/Pathophysiology II	4
Biochemistry	3	Molecular Biology	3
Immunology	3	Self Care/OTC	3
Foundations of Pharmacy	1	Pharmacy Skills Lab II	1
Pharmacy Skills Lab I	1	IPS Workshop II ¹	1
IPS Workshop I ¹	1	Elective	3
Total	16	Total	18

IPPE Community and IPPE Public Health Summer after P1 year – 3 credits & 1 credit			
Professional Year 2 (P2)			
Fall Semester	Credits	Spring Semester	Credits
Principles of Pharmacology and Medicinal Chemistry	2	PTP&M – Endocrine ²	2
Pharmacokinetics	3	PTP&M – GI/Nutrition ²	2
PTP&M – Cardiovascular ²	4	PTP&M – Infectious Disease ²	4
PTP&M- Respiratory Disease ²	1	(US and Global Health Care Systems)	3
DI/Biostats	2		
IPS Workshop III ¹	1	IPS Workshop IV ¹	1
Scientific Literature Evaluation ³	1	Scientific Literature Evaluation ³	1
Elective	3	Elective	3
Pharmacy Skills Lab III	1	Pharmacy Skills Lab IV	1
Total	17-18	Total	16-17

¹ IPS Integrated Problem Solving Workshops

² PtpM – Pathophysiology, Therapeutics, Physiology, and Medicinal Chemistry

³ Students take once in the fall or spring.

IPPE Institutional & IPPE Patient Assessment- 3 credits & 1 credit , to be completed prior to starting P3			
Professional Year 3 (P3)			
Fall Semester	Credits	Spring Semester	Credits
PTP&M ² - Rheum/Connective Tissue	1	Immunizations	1
PTP&M ² – Nephrology/Toxicology	2	Integrative/Alternative Medicine	1
PTP&M ² – Genitourinary	2	IPS ¹ Workshop VI	3
PTP&M ² – Neurology/Psychology	4	Elective	3
IPS ¹ Workshop V	1	Jurisprudence	3
PTP&M Oncology	1	Pharmacy Administration	3
Pharmacoeconomics and Health Policy	3	Pharmacy Skills Lab VI	1
Pharmacy Skills Lab V	1	Health Care and Human Values	3
Orientation to APPE	No credit		
Elective	3		
Total	18	Total	18
Professional Year 4 (P4) Advanced Pharmacy Practice Experiences (36 credits) Summer, Fall and Spring Semesters			
Community Core Rotation			6
Institutional Core Rotation			6
Inpatient Core Rotation			6
Ambulatory Care Core Rotation			6
Elective			6
Elective			6
Total			36

Abbreviations:

¹IPS Workshop = Integrated Problem Solving Workshop

²PTP&M = Pathophysiology, Therapeutics, Pharmacology and Medicinal Chemistry

Total # of Liberal Arts Elective Credits Needed: 9
Total # of Professional Elective Credits Needed: 15
Grand Total # of Elective Credits Needed for Completion of the Doctor of Pharmacy Program: 24

ACADEMIC STANDARDS FOR DOCTOR OF PHARMACY PROGRAM

Students enrolled in the Doctor of Pharmacy Program at ACPHS must adhere to the following academic standards: ***(Applies to P1 students in Fall of 2011–Class of 2015)***

Pharm D (P1 – P4): Professional GPA

The professional GPA is determined using grades earned in all professional courses. Professional courses are defined as all required courses in years P1-P4.

A minimum cumulative professional GPA of 2.5 must be achieved to graduate at the end of P4 of the PharmD program. Failure to achieve this standard may result in College dismissal.

A graded approach to GPA throughout the professional years will be used, as follows:

1. Achieve cumulative professional GPA of 2.1 at the end of P1
2. Achieve cumulative professional GPA of 2.2 at the end of P2
3. Achieve cumulative professional GPA of 2.3 at the end of P3

Failure to achieve these graded standards will result in program probation.

PharmD Program (P4): Experiential Education Requirements

All curricular requirements must be completed successfully before students may enter the Advanced Pharmacy Practice Experiences (APPEs).

Experiential Honors:

Beginning with the class of 2014, the College will recognize the top 10% of the class for Experiential honors. This recognition will be based on grades and preceptor comments regarding a student. A special ribbon or cord will be selected to recognize these students at graduation.

PharmD (P1-P3) Course Waiver Requirements for Matriculated Students

New students accepted to the ACPHS are required to take all required courses in the program at the College. This requirement may be waived for students with academic credit for biochemistry, molecular biology and/or immunology courses taken at other academic institutions. Waiving the requirement will be considered if:

- Academic credit for the course was earned within the last three years from an accredited academic institution;
- A grade of B or better was earned in the course;
- The course is a 300-level (third year) course.

Procedure for Course Waiver

1. Students submit a request for course waiver in writing to the Office of Admissions, along with the course description and syllabus from the academic institution where course credit was earned.
2. The Office of Admissions will forward the course description and syllabus to the chair of the department that offers the course at ACPHS.
3. The department chair will identify a credentialed faculty member in the department (usually course coordinator) to review and evaluate the course description syllabus. The faculty member will make a written recommendation (with supporting rationale) about whether the course fulfills ACPHS requirements to the department chair.
4. The department chair will review the recommendation on the course made by the faculty member, and make a departmental recommendation on the course to the Admissions Committee.
5. The Admissions Committee will review all materials available related to the request for the course waiver, including letter of request from the student, student transcript, course description, course syllabus and department recommendation. The Admissions Committee will grant or deny the request for a waiver based on evaluation of all materials provided and forward this decision to the Office of Admissions. The Office of Admissions will send all decisions on course waiver requests directly to the student in writing, pending receipt of final grades for courses for which a waiver is requested.

PharmD Program (P1-P4): Probation and Dismissal

Academic Probation

The following description of academic probation applies to the students currently enrolled in the P1 class of 2011 (Graduating Class of 2015):

A student will be placed on probation if any of the following conditions exist:

- A cumulative professional GPA below 2.1 after P1; below 2.2 after P2; below 2.3 after P3.
- Any grade point average (GPA) below 2.0 (semester, cumulative, professional semester);
- A single grade of F

While on academic probation a student is ineligible for class and student organization office, joining a fraternity, participation in intercollegiate athletics and service on College committees. In some cases, financial aid may be jeopardized.

The following description of academic probation applies to the students currently enrolled in the graduating class of 2012, 2013, 2014:

A student will be placed on probation if any of the following conditions exist:

- Any grade point average (GPA) below 2.0 (semester, cumulative, professional semester, professional cumulative);
- Grade of F in one or more courses.

A student on academic probation must improve performance and meet the conditions of probation recommended by the Academic Standing Committee and administered by the Dean of Students before being removed from academic probation. While on academic probation a student is ineligible for class and student organization office, joining a fraternity, participation in intercollegiate athletics and service on College committees. In some cases, financial aid may be jeopardized.

A student on academic probation will not be removed from academic probation until the student successfully completes a semester in good standing at ACPHS, either after or during the remediation of his/her deficiency as a fulltime student.

Academic Dismissal

A student may be dismissed from the College for any of the following academic reasons:

- One or more grades of F in two consecutive terms
- Two or more grades of F in any single term
- Grades of D+, D, D- or F in three or more courses in any single term
- Two consecutive or non-consecutive terms of probation
- Three introductory or advanced pharmacy practice experience (IPPE/APPE) grades of less than C
- Two introductory or advanced pharmacy practice experience (IPPE/APPE) grades of F

Academic dismissal usually is not invoked until academic probation has been imposed. However, academic dismissal may be recommended before probation when a student's academic record is significantly below average performance.

PharmD Program (P1-P4): Appeal Policy for Dismissals

Students are permitted to appeal decisions made by the Academic Standing Committee. Appeal requests must be submitted in writing to the Dean of Students (Albany) or Assistant Dean for Students (Vermont). The letter of appeal from the student should contain a statement referencing the original decision by the Academic Standing Committee and an explanation addressing why it is being appealed. The basis for such appeals should involve cases of unusual or extenuating circumstances that directly impacted the student's ability to meet ACPHS academic standards. In the event that extenuating circumstances are identified, appropriate documentation supporting the assertion by a competent, qualified professional must be included when applicable. The College reserves the right to require further evaluation.

Deadlines for appeal are January 5 following the fall semester, June 5 following the spring semester and August 20 following the summer semester. While there are deadlines for student appeals, appeals are heard on a rolling basis by the Academic Standing Appeals Committee.

PharmD Program (P1-P4): Remediation of Professional Courses

Students in the professional years may remediate courses preferentially at ACPHS or may do so at another accredited professional level school if the course is pre-approved by the course coordinator and department chair (See registrar's website for approval form). Students must earn a grade of B or better in courses repeated at other institutions. A specific course may be repeated only one time. Record of both courses will remain on the official transcript. A student's progression through the program may be delayed as a result of the required remediation. A failure in a pass/fail course will place the student on academic probation and must be remediated.

PharmD Program (P1-P4): Readmission Policy for Doctor of Pharmacy Program

Individuals who have been dismissed from the Pharmacy Program for academic reasons may apply to the first professional year (P1) through PharmCAS (see <http://www.pharmcas.org> for details and application deadlines). The same admission standards for the P1 applicants will apply. Contact the Pharmacy Admissions office for further information (pharmadmissions@acphs.edu).

PharmD Program: Requirements for Graduation

Candidates for the PharmD degree satisfy all of the academic requirements of the program and are approved for conferral of the degree by a majority vote of the faculty. Graduation requirements include having:

- Completed Professional Years (P1-P4) at ACPHS
- Completed the necessary required and elective courses and semester hours
- Earned a cumulative professional GPA of 2.5 or better at the end of P4
- Paid all College-related financial obligations
- Returned all material belonging to the College

The College reserves the right to change the requirements for graduation.

EARLY ASSURANCE & GENERAL PRE-PHARMACY ADMISSIONS

First-and second-year students (Freshmen and Sophomores) entering the College have two distinct classifications. Applicants are selected for each option based on their Undergraduate Application for Admission and academic strength of the incoming class.

- **Early Assurance:** is reserved for the majority of the incoming pharmacy class. Students who complete two years of undergraduate work and fulfill mandatory progression requirements are qualified for a seat in the remaining four professional years of the program. No reapplication to the pharmacy program is necessary. Students may opt to complete the four professional years on the Albany or Vermont campus.

General pre-pharmacy: is reserved for students admitted to the pre-pharmacy BS HHS program. Students completing two years of the pre-pharmacy curriculum may apply for admission into the Doctor of Pharmacy program through PharmCAS. Preference is given to pre-pharmacy BS HHS students over external applicants. Students accepted through PharmCAS may opt to complete their four professional years on the Albany or Vermont campus.

PHARM D PROGRAM (PROFESSIONAL PHARMACY YEARS P1-P4) PROGRESSION/ADMISSION REQUIREMENTS:

Students progressing into the P1 year of the PharmD program are required to meet the following criteria:

1. Completion of all pre-pharmacy courses by May, preceding P1 entry
2. Overall GPA \geq 3.0 in all pre-pharmacy courses
3. Passing Score in the PCAT writing conventions of language (3.0 or higher)
4. Successful completion of the PharmD interview
5. Minimum score on PCAT (300 on all sections)

Pharm D Program (P1-P4): Requirements for Progression of Internal Students

Students in the Early Assurance program who have successfully met all of the progression requirements will be admitted to the P1 year of the PharmD program. Note: The official GPA for progression will be calculated at the end of the spring semester of the second year. The interview will be conducted during the second year. Students with GPAs of 2.5 to 2.95, and/or PCAT writing scores of 2.0 to $<$ 3.0 may apply to the Pharmacy Admissions and Academic Standards Committee (PAASC) for admissions consideration; the Committee will review overall GPA, math/science coursework GPA, PCAT scores, interview scores and application essay, and will extend offers of admissions to select students.

Second year students will not have the opportunity to remediate coursework or GPA deficiencies during the summer following final admissions decisions. Students with special circumstances may appeal to remain in the pre-pharmacy curriculum for an additional year to improve deficiencies.

Students enrolled in the general pre-pharmacy-BS-HHS program (not Early Assurance PharmD candidates) may apply for admission to P1 through PharmCAS. Preference is given to ACPHS students over external applicants. The PharmCAS application will include letters of recommendation, personal essay, extracurricular activities, transcripts, and PCAT scores. Select general pre-pharmacy BS students will be invited for personal interview. Students are accepted on a competitive, space available basis.

Students in the general pre-pharmacy program who attain an overall GPA of 3.0 at the end of the first semester of the second pre-pharmacy year will be reviewed by PAASC and may be offered an Early Assurance classification, and therefore would be eligible for P1 admission without further application, provided all progression requirements are met. Students that do not meet all the requirements for admission/progression into the First

Professional Year, but who remain in good academic standing (>2.0 GPA) at ACPHS, may consider other programs at ACPHS.

POLICY FOR REVIEW OF INTERNAL PHARMD STUDENTS FOR ADMISSION INTO P1

General Guidelines

The policy was implemented in the 2010-2011 academic year and applies to the PharmD Class of 2015 and beyond. This policy applies to internal Direct Entry and Early Assurance PharmD Students (including Early Assurance T2 transfer students). The policy does not apply to ACPHS BS students in the HSS-pre-pharmacy program or BS students in the Pharmaceutical Sciences or Biomedical Technology program seeking admission into the PharmD program; these students must apply to the PharmD program through PharmCAS.

Application Process for Students that do not meet progression requirements, above:

Eligible students may apply for admission to the P1 year through this Window Policy. To apply, students must complete an application form and submit it in an electronic format to the Office of Pharmacy and Graduate Admissions by May 11, 2012, preceding entry into the P1 year.

Notification of Final Admissions Decisions (May)

All completed applications will be reviewed by the PAASC. Applications will take into account academic performance in pre-pharmacy coursework with an emphasis on math/science courses, interview and PCAT scores. The PAASC will convene and make recommendations on the applications by May 16, 2012. Based on PAASC review, applicants will be grouped into two categories:

Not Recommended: Admission into the P1 year is not recommended.

Recommended: Admission into the P1 year is recommended.

PAASC Recommendations will be forwarded to the Dean of the School of Pharmacy and Pharmaceutical Sciences. The Dean will review the recommendations of the PAASC and make a final determination on the applications for admission into the P1 year by May 18, 2012. Decisions will be immediately communicated to applicants by the Office of Pharmacy and Graduate Admissions on or about May 18, 2012.

Students who are not recommended for admission into the P1 year of the PharmD program may apply to other programs at the College if he/she otherwise meets the requirements of the other programs.

BACKGROUND CHECKS

The College requires that all students, at the student's expense, provide a background check prior to entry into the first professional year (P1). Negative findings contained within the background check will be reviewed by a committee appointed by the Provost, to determine if the finding prevents the student's admission, progression, or ability to successfully complete experiential rotations. Negative findings will not automatically disqualify a student from matriculation or continued enrollment. If the committee in its sole discretion, determines that progression in the program is inappropriate, the student will be informed in writing and/or by e-mail by the Assistant Dean for Admissions and Experiential Education. The student may appeal the committee's determination to the Provost within five (5) business days of the receipt of electronic notification of the committee. The Dean of Students will meet with students denied progression to discuss alternate educational options.

In addition, for those ACPHS degree programs which require the completion of College-supervised experiential education rotations, specific rotation sites may require a student to provide a background check prior to commencement of their rotation at that site. In such cases, ACPHS will provide appropriate instructions for students to begin a background check, and ACPHS will cover the cost of the check. Rotation sites hosting experiential education students may deny a student's participation in the experiential program because of a negative finding, or could result in delayed graduation or in the inability to graduate from the program. Nothing

contained in this policy shall limit or supersede the College's provisions, processes or penalties established pursuant to the Student Disciplinary Code.

Pharm D Program (P1-P4): Requirements for Admission of External Students

External applicants or ACPHS students enrolled in BS programs seeking admission into the professional years of the PharmD program must apply through PharmCAS. Accepted students typically meet the following requirements:

- A cumulative GPA of 2.75 or higher (average 3.2 GPA)
- No course grade less than C- in the pre-pharmacy required courses
- A scaled score of 300 on each section of the PCAT (average is 51% on composite PCAT score)
- Successful completion of interview

Qualified applicants will be invited to campus to complete an interview. The interview will include a face-to-face conversation with faculty/staff members of the college. The results of the interview will be a factor in the admissions decision. External applicants will be admitted on a competitive space available basis.

PHARM D PROGRAM (P1-P4): ADDITIONAL REQUIREMENTS FOR ADMISSION OF INTERNATIONAL STUDENTS

Applicants who have studied for fewer than 10 years where English is not the language of instruction are required to submit scores from the Test of English as a Foreign Language (TOEFL) or the Test of Spoken English (TSE). A minimum score on the TOEFL of 474 paper-based (70% of the maximum score of 677), or 84 Internet-based (70% of the maximum score of 120); and a minimum of 50 on the TSE must be achieved to be considered for admission.

Applicants with international transcripts must submit a credential evaluation completed through the World Education Service (WES).

IMPORTANT DEADLINES FOR TRANSFER APPLICANTS INTO THE PHARM.D. PROGRAM

SEPTEMBER 1: Early Decision application deadline through PharmCAS.

FEBRUARY 1: Free Application for Federal Student Aid (FAFSA) Deadline - *(All students)*

MARCH 1: Regular Admission Priority Deadline

Note: Supplemental Application and Fee: A supplemental application available at <http://www.acphs.edu/files/admissions/documents/SupplementalApplication-ComputerVersion.pdf> is required to be submitted to ACPHS. A \$100 check or money order should be made payable to Albany College of Pharmacy and Health Sciences. To pay by Visa or MasterCard, download and submit the supplemental fee credit card form available at <http://www.acphs.edu/files/admissions/documents/SUPPLEMENTALfeepmtformrevised.doc>. The application will not be processed prior to receipt of this application fee.

INSTRUCTIONS FOR TRANSFER ENTRY INTO THE PROFESSIONAL PHARM.D. PROGRAM

Applications for transfer admission into the Doctor of Pharmacy will be accepted from students who have completed or plan to complete the required coursework. Applicants must complete an application form through the Pharmacy College Application Service (PharmCAS), which will collect and process all transfer applications to the College. Applicants will have to submit a complete Web-based application comprised of biographical data, postsecondary institutions attended, academic course history, work experience, extracurricular activities, three letters of recommendation and a personal statement and official transcripts from all accredited institutions attended. Please visit **www.PharmCAS.org** to access information on application requirements as well as policies and procedures. PCAT scores are submitted via PharmCAS. The PharmCAS code for PCAT is 104. Applicants who have studied for fewer than ten years where English is the language of instruction are required to submit scores from the Test of English as a Foreign Language (TOEFL) or the Test of Spoken English (TSE). The TOEFL is offered in a paper or internet based format to be considered for admission. Applicants must achieve a minimum score on the TOEFL of 474 paper-based (70% of the maximum score of 677), or 84 Internet-based (70% of the maximum score of 120);. For applicants selecting TSE exam, a minimum score of 50 is required. Applicants must present evidence of graduation from an approved or accredited secondary school.

REQUIRED COURSEWORK FOR TRANSFER INTO THE FIRST YEAR OF THE DOCTOR OF PHARMACY PROGRAM:

General Chemistry I & II	8 semester hours
General Biology I & II	8 semester hours
Biology (200 level or higher)	3 semester hours
Organic Chemistry I & II	8 semester hours
Statistics	3 semester hours
Calculus I	4 semester hours
Microbiology	4 semester hours
Physics I & II	8 semester hours
General Psychology	3 semester hours
Humanities	9 semester hours
Liberal Arts electives	9 semester hours
Public Speaking	3 semester hours

Humanities credits can be taken from English literature, composition, US History, Western Civilization or cross-disciplinary humanities credits.

Liberal arts electives include art, music, sociology, history, psychology, anthropology, foreign language, political science, economics and English. Other electives include any course that is not required in the standard curriculum list above.

No credit will be accepted for grades lower than “C” (C- is not acceptable) or for physical education courses. ACPHS reserves the right to refuse the transfer of any previously earned college credits.

Students accepted into the Pharm.D. program are required to take all courses in the program at the College beginning in the first session. This requirement may be waived for PharmD students with credit for biochemistry, molecular biology and/or immunology taken at other institutions. Course waiver request forms can be obtained from the Office of Pharmacy Admissions.

NON-ACADEMIC REQUIREMENTS FOR INTRODUCTORY AND ADVANCED PHARMACY PRACTICE EXPERIENCE (APPE)

Prior to IPPEs, students must become licensed intern in the state that the rotation will be performed.

Prior to APPEs, students must have the following:

- Successful completion of IPPE.

Prior to IPPEs and APPEs, students must have the following:

A copy of immunization records from their physician’s office (in the event a site requests to see them).

- Proof of a recent physical exam (recommended to be performed approximately two weeks prior to the start of rotations, so that it remains valid through the duration of APPEs) - Students will be provided with appropriate forms to complete.
- Tuberculosis Screening test (PPD) - Students will be provided with appropriate forms to complete.
- CPR Certification, valid for the duration of APPE rotations

Some clinical sites may have their own requirements as well, including criminal background checks, rubella or varicella titers (which indicates proof of immunity, as opposed to proof of the vaccine), etc. Specific requirements, if any, would be noted in the rotation site’s record within the E*Value database, and would be communicated to the appropriate students via email in advance of the rotation by Experiential Education staff. Institutions hosting experiential education may deny a student’s participation in the experiential program because of the inability to produce an appropriate health clearance, which could result in delayed graduation or in the inability to graduate from the program.

CAMPUS TRANSFER POLICY

(For Pharm.D. Students in the Professional Years)

Students who matriculate into the Albany, NY or Colchester, VT campus are required to remain at that campus.

However, in the event of an unforeseen change in circumstances, a student may request a campus transfer from the original campus to the second campus by providing a justified request in writing to the Chair of the Pharmacy Admissions and Academic Standards Committee.

BACHELOR OF SCIENCE IN PHARMACEUTICAL SCIENCES

The pharmaceutical sciences are critical to helping unlock the mysteries hidden away inside the human body. Pharmaceutical scientists are focused on the discovery and development of the medications that are eventually dispensed by pharmacists and used every day by patients to manage their health.

Prepare for an Exciting Career

The Bachelor of Science in Pharmaceutical Sciences (BSPS) program at ACPHS is an excellent launching pad to a wide range of career opportunities and will help set students apart from biology or chemistry majors for a range of positions at pharmaceutical, chemical and biotech companies as well as for graduate, medical, dental and other health and science focused educational pathways. The majority of our graduates have continued on to either medical or graduate education programs (MD, MS, and PhD). Our newly approved bachelor/master program in pharmaceutical sciences (BS/MSPS) enhances our academic offerings and research focus to allow students to gain both their bachelor and master degree in five years instead of the traditional six years.

Research Focused

Research opportunities provide the foundation for ACPHS's Pharmaceutical Sciences program. Students have many opportunities to be engaged in laboratory-based coursework beginning in their first year, working side-by-side with researchers whose skills have attracted funding from both government and private industry sources. Student research experiences span a wide range of medically-related areas that include cancer, diabetes, chronic kidney disease, addiction and inflammation as well as drug development and drug delivery systems and pharmacokinetics research. The BSPS program now includes an elective Thesis Option for the most dedicated research BSPS students. As part of this elective option, students will take several courses focused on bench research alongside thesis courses focused on the related science of their project and the preparation of a written thesis of their research work.

Pathways

In recent years, graduates of the pharmaceutical sciences program have continued their education at graduate, medical schools, physician assistant programs, dental, nurse practitioner programs and law school as well as some that have moved directly into the pharmaceutical industry. The combination of classroom instruction and laboratory training in this program is ideal for pursuing opportunities in such fields as: Neuroscience, Pharmacology, Drug Discovery and Development, Nanopharmaceuticals and medically related fields that depend on these disciplines.

PROGRAM OF STUDY:

BACHELOR OF SCIENCE IN PHARMACEUTICAL SCIENCES (BSPS) DEGREE

The Albany College of Pharmacy and Health Sciences' four-year bachelor degree in Pharmaceutical Sciences (BSPS) provides a strong foundation in the basic and pharmaceutical sciences. BSPS graduates will be well-prepared for entrance into basic science graduate programs, business, law, medical, dental, veterinary programs of study as well as related health care programs and entry-level positions in pharmaceutical, chemical and biotechnology industries.

BS in Pharmaceutical Sciences (BSPS) Degree Program Professional Practice-based Outcomes:

- I. Integrate fundamental cross-disciplinary didactic information in the sciences to the study of basic, clinical, and translational research paradigms.
- II. Understand current advancements in basic and clinical sciences in the context of field-specific histories and how such knowledge facilitates solutions and frames problems in basic, clinical, and translational research.
- III. Foster self-motivation and the practical application of scientific principles necessary to carry out productive research in biomedical sciences.
- IV. Cultivate critical thinking abilities, problem solving skill sets, and the creative independence characteristic of excellence in research.
- V. Provide practical experiences that establish a foundation requisite for successful post baccalaureate careers in clinical, basic, biotechnological, and industrial sciences.

BS IN PHARMACEUTICAL SCIENCES JOINT PROGRAMS AND ARTICULATION AGREEMENTS:

Information regarding joint programs between the BS in Pharmaceutical Sciences Program and other institutions can be found in the Articulation Agreements and Joint Degree Programs section. These include the BSPS/MBA in Healthcare Administration and BSPS/MS in Clinical Leadership in Healthcare Management with Union Graduate College, BSPS/JD with Albany Law School, BSPS/MS with ACPHS, a BSPS/PA with Albany Medical College and BSPS Early Assurance to the MD program at Albany Medical College.

BS IN PHARMACEUTICAL SCIENCES THESIS OPTION:

The Thesis Option of the BSPS program is specifically designed for students with a substantial interest participating in basic science research. The elective courses within this option fulfill up to 12 Directed Elective and 6 General Education (Thesis I and II) credits toward graduation requirements. Contact the Director of the BS in Pharmaceutical Sciences Program directly for application materials.

Thesis Option Courses:

Pharmaceutical Analytical Techniques I and II (3, 3); elective courses dependent on thesis project

Thesis Research I (3) and II (3);

Thesis I (3) and II (3)

BS IN PHARMACEUTICAL SCIENCES REQUIRED COURSES

There are currently 3 concentrations within the BPS program (Pharmacology, Pharmaceutics and Pharmaceutical Marketing and Regulatory Science). The required and elective courses for each of these concentrations differ. It is possible for students to complete the requirements for more than one concentration through their elective choices.

REQUIRED COURSES COMMON TO ALL CONCENTRATIONS:

Required courses for all concentrations (Pharmacology, Pharmaceutics and Pharmaceutical and Healthcare Management); other required courses are specific to each concentration and are listed below with each BPS Concentration.

Biological Sciences: 24 required credits

General Biology I and II (4,4)
Biochemistry (3)
Molecular Biology (3)
Physiology/Pathophysiology I and II (4,4)
Foundations of Pharmaceutical Science (2)

Physical Sciences and Mathematics: 33 required credits

Introduction to Laboratory Data (2)
General Chemistry I and II (4,4)
Organic Chemistry I and II (4,4)
College Physics I and II (4,4)
Elementary Statistics (3)
Calculus I (4)

Communications: 7 required credits

Seminar in Health Professions (1)
Principles of Communication (3)
Scientific Communications (3)

Humanities, Culture and Health: 9 required credits

The Pre-Modern World, The Modern World, The Contemporary World (3,3,3)

Total required courses common to all BPS concentrations: 73 credits

Each BPS concentration includes additional required and elective courses to fulfill graduation requirements.

Elective requirements for each concentration include:

- 1. Directed Electives:** Directed electives are courses selected with the help of an academic advisor that further the student's academic and career goals. These include any non-required science course and non-science courses closely related to the student's academic and career goals.
- 2. Liberal Arts Electives:** Liberal arts electives include art, music, sociology, history, psychology, anthropology, foreign language, political science, economics and English.
- 3. General Education Electives:** General education electives are any courses that are not required in the standard curriculum.

CONCENTRATION SPECIFIC REQUIRED AND ELECTIVE COURSES:

BSPS PHARMACOLOGY CONCENTRATION:

Biological Sciences: 14 required credits

Pharmacology I (2)

Pharmacology II (3)

Pharmacology III (3)

Drug Discovery and Development (3)

Elective in Pharmacology; **OR** Scientific Literature Evaluation; **OR** Journal Club (**3 credits total**)

Elective Requirements: 39 credits (elective credits can include *Thesis Option* courses)

Directed Electives: 21 credits

General Education Electives: 18 credits (9 of these 18 credits must be in the humanities)

Total required course credits: 87 credits

Total elective course credits: 39 credits

Total graduation credits: 126 credits

Sample BPS curriculum - Pharmacology Concentration without Thesis Option

Year 1						
Fall Semester			Credits	Spring Semester		
BIO101	General Biology I	4		BIO102	General Biology II	4
CHE101	General Chemistry I	4		CHE102	General Chemistry II	4
MAT115	Introduction to Laboratory Data	2		MAT145	Elementary Statistics	3
HUM110	The Pre-Modern World	3		HUM120	The Modern World	3
BSS102	Seminar in Health Professions	1		COM115	Principles of Communication	3
	Elective	3				
	Total	17		Total		17
Year 2						
Fall Semester			Credits	Spring Semester		
CHE211	Organic Chemistry I	4		CHE221	Organic Chemistry II	4
PHY212	College Physics I	4		PHY222	College Physics II	4
HUM210	The Contemporary World	3			Elective	3
MAT121	Calculus I	4			Elective	3
	Total	15		Total		14
Year 3						
Fall Semester			Credits	Spring Semester		
PSC311	Biochemistry	3		PSC312	Molecular Biology	3
PSC321	Physiology/Pathophysiology I	4		PSC322	Physiology/Pathophysiology II	4
	Directed Elective	3		PSC445	Drug Discovery and Development	3
	Elective	3			Directed Elective	3
	Elective	3			Directed Elective	3
	Total	16		Total		16
Year 4						
Fall Semester			Credits	Spring Semester		
PSC431	Foundations of Pharm. Science	2		PSC433	Pharmacology II	3
PSC253	Scientific Communications	3		PSC434	Pharmacology III	3
PSC432	Pharmacology I	2			Directed Elective	3
Various	Pharmacology Elective	3			Directed Elective	3
	Directed Elective	3			Elective	3
	Elective	3				
	Total	16		Total		15

BSPS PHARMACEUTICS CONCENTRATION:

Physical Sciences and Mathematics: 13 required credits

Pharmaceutics I and II (3,3)

Pharmacokinetics (3)

Calculus II (4)

Elective Requirements: 39 credits (elective credits can include *Thesis Option* courses)

Directed Electives: 21 credits

General Education Electives: 18 credits (9 of these 18 credits must be in the humanities)

Total required course credits: 86 credits

Total elective course credits: 39 credits

Total graduation credits: 125 credits

**Sample BS in Pharmaceutical Sciences Curriculum –
Pharmaceutics Concentration without Thesis Concentration**

Year 1					
Fall Semester			Spring Semester		
		Credits			Credits
BIO101	General Biology I	4	BIO102	General Biology II	4
CHE101	General Chemistry I	4	CHE102	General Chemistry II	4
MAT115	Intro. to Laboratory Data	2	MAT145	Elementary Statistics	3
HUM110	The Pre-Modern World	3	HUM120	The Modern World	3
BSS102	Seminar in Health Professions	1	COM115	Prin. of Communication	3
	Elective	3			
	Total	17		Total	17
Year 2					
Fall Semester			Spring Semester		
		Credits			Credits
CHE211	Organic Chemistry I	4	CHE221	Organic Chemistry II	4
PHY212	College Physics I	4	PHY222	College Physics II	4
HUM210	The Contemporary World	3	MAT211	Calculus II	4
MAT121	Calculus I	4		Directed Elective	3
	Total	15		Total	15
Year 3					
Fall Semester			Spring Semester		
		Credits			Credits
PSC311	Biochemistry	3	PSC312	Molecular Biology	3
PSC321	Physiology/Pathophysiology I	4	PSC322	Physiology/Pathophysiology II	4
PSC341	Pharmaceutics I	3	PSC342	Pharmaceutics II	3
	Directed Elective	3		Directed Elective	3
	Elective	3		Directed Elective	3
	Total	16		Total	16
Year 4					
Fall Semester			Spring Semester		
		Credits			Credits
PSC431	Foundations of Pharm. Science	2		Directed Elective	3
PSC253	Scientific Communications	3		Directed Elective	3
PSC441	Pharmacokinetics	3		Elective	3
	Directed Elective	3		Elective	3
	Elective	3		Elective	3
	Total	14		Total	15

BSPS PHARMACEUTICAL MARKETING AND REGULATORY SCIENCE

Physical Sciences and Mathematics: 6 required credits

Pharmaceutics I and II (3,3)

Business/management/healthcare courses: 18 required credits

Drug Discovery and Development (3)

Regulatory Science (3)

Us and Global Healthcare Systems (3)

Introduction to Economics (3)

Principles of Management (3)

Introduction to Sales and Management in the Pharmaceutical Industry (3)

Elective Requirements: 27 credits

Directed Electives: 9 credits

General Education Electives: 18 credits (9 of these 18 credits must be in the humanities)

Total required course credits: 97credits

Total elective course credits: 27 credits

Total graduation credits: 124 credits

**Sample BS in Pharmaceutical Sciences Curriculum –
Pharmaceutical Marketing and Regulatory Science concentration**

Year 1					
Fall Semester		Credits	Spring Semester		Credits
BIO101	General Biology I	4	BIO102	General Biology II	4
CHE101	General Chemistry I	4	CHE102	General Chemistry II	4
MAT115	Intro. to Laboratory Data	2	MAT145	Elementary Statistics	3
HUM110	The Pre-Modern World	3	HUM120	The Modern World	3
BSS102	Seminar in Health Professions	1	COM115	Principles of Communication	3
	Elective	3			
	Total	17		Total	17
Year 2					
Fall Semester		Credits	Spring Semester		Credits
CHE211	Organic Chemistry I	4	CHE221	Organic Chemistry II	4
PHY212	College Physics I	4	PHY222	College Physics II	4
HUM210	The Contemporary World	3	ENC101	Introduction to Economics	3
MAT121	Calculus I	4		Elective	3
	Total	15		Total	14
Year 3					
Fall Semester		Credits	Spring Semester		Credits
PSC311	Biochemistry	3	PSC312	Molecular Biology	3
PSC321	Physiology/Pathophysiology I	4	PSC322	Physiology/Pathophysiology II	4
PSC341	Pharmaceutics I	3	PSC342	Pharmaceutics II	3
	Directed Elective	3	PAD317	Principles of Management	3
	Elective	3		Directed Elective	3
	Total	16		Total	16
Year 4					
Fall Semester		Credits	Spring Semester		Credits
PSC431	Foundations of Pharm. Science	2	TBD	Regulatory Science	3
PSC253	Scientific Communications	3	PAD351	Introduction to Sales and Marketing in the Pharmaceutical Industry	3
PAD415	US and Global Healthcare Systems	3	PSC445	Drug Discovery and Development	3
	Directed Elective	3		Elective	3
	Elective	3		Elective	3
	Total	14		Total	15

ACADEMIC STANDARDS FOR BS IN PHARMACEUTICAL SCIENCES

Students in the Bachelor of Science in Pharmaceutical Sciences (BSPS) program must meet the following academic standards.

Academic Probation:

A student will be placed on probation if any of the following conditions exist:

- A semester or cumulative GPA below 2.0
- Two or more grades below C-
- A single grade of F

A student on academic probation must improve performance and meet the conditions of probation recommended by the Academic Standing Committee and administered by the Dean of students before being removed from academic probation. While on academic probation a student is ineligible for class and student organization office, joining a fraternity, participation in intercollegiate athletics and service on College committees. In some cases, financial aid may be jeopardized.

A student on academic probation will not be removed from academic probation until the student successfully completes a semester in good standing at ACPHS, either after or during the remediation of his/her deficiency as a fulltime student.

Academic Dismissal:

A student may be dismissed from the College if one of the following conditions exists:

- Two instances of probation (whether consecutive or non-consecutive)
- A semester GPA below 1.6

Academic dismissal usually is not invoked until academic probation has been imposed. However, academic dismissal may be recommended before probation when a student's academic record is significantly below average performance. Students who are academically dismissed from the College are not permitted to enroll in or attend courses at the College, or to earn credit toward degrees offered at ACPHS.

Academic Appeals

Students are permitted to appeal decisions made by the Academic Standing Committee. Appeal requests must be submitted in writing to the Dean of students. The letter should contain a statement referencing the original decision by the Academic Standing Committee and an explanation addressing why it is being appealed. The basis for such appeals should involve cases of unusual or extenuating circumstances that directly impacted the student's ability to meet the ACPHS' academic standards. In the event that extenuating circumstances are identified, appropriate documentation supporting the assertion by a competent, qualified professional must be included when applicable. The College reserves the right to require further evaluation.

Deadlines for appeal are January 5 following the fall semester, June 5 following the spring semester and August 20 following the summer semester. While there are deadlines for student appeals, appeals are heard on a rolling basis by the Academic Standing Appeals Committee.

Readmission Policy

Individuals who have been dismissed from the college for *academic* reasons may apply for readmission. To be considered for readmission, the applicant must be away from the College for at least one semester and demonstrate academic success at an accredited college or university. Students must apply for readmission to the Undergraduate Admissions and Academic Standards Committee (UAASC) by December 31 (for spring semester reinstatement) and May 30 (for fall semester reinstatement). Applications must include: a completed application form, cover letter, transcripts and a letter of recommendation from the college or university attended. Upon review of the readmission package, UAASC may deny readmission, readmit the student, or readmit the student with conditions. Failure to meet the conditions of readmission will result in automatic dismissal from the College. A student dismissed from the College a second time will not be considered for readmission. *The College reserves the right to deny readmission to individuals who have been dismissed for academic reasons, regardless of whether or not minimal readmission criteria have been met.*

Minimum Requirements to Apply for Readmission

- Must be enrolled at an accredited College/University as a fulltime student (12 credits minimum) for at least 1 semester
- Must hold a minimum GPA of 2.0 (with no grades below a C)
- Must complete an application form
- Must provide a cover letter, transcripts and a letter of recommendation from the college or university attended.
- Must apply for readmission by designated due dates (Dec. 31 or May 30)

TRANSFER STUDENTS

MINIMUM RESIDENCY AND CREDIT REQUIREMENTS

Transfer students must complete a minimum of 60 credit hours at ACPHS and at least two semesters as a full-time student in the BSPS program to be eligible for graduation with a BSPS degree.

IMPORTANT DEADLINES FOR TRANSFER APPLICANTS:

FEBRUARY 1

Admission priority deadline for fall semester entry
Free application for Federal Student Aid (FAFSA) due

INSTRUCTIONS FOR BSPS TRANSFER STUDENTS FROM OTHER ACPHS PROGRAMS:

Internal ACPHS students desiring transfer to the BSPS program from other ACPHS programs must complete an application process including an interview with a Pharmaceutical Sciences Department faculty member; this procedure is in addition to the form available through the registrar's office. Students must be in good academic standing to transfer to the BSPS program. Students wishing to transfer to the BSPS program from other ACPHS academic programs should contact the Director of the BS in Pharmaceutical Sciences Program directly for application materials. Transfer to various years of the BSPS program will be based on course requirements stipulated below in the external transfer students section.

INSTRUCTIONS FOR BSPS TRANSFER STUDENTS FROM OTHER ACADEMIC INSTITUTIONS:

To ensure full consideration and placement in the incoming class, it is highly recommended that the completed application be submitted by the priority deadline of February 1. Applications for transfer admission into the second or third year of the Bachelor of Science programs will be accepted from students who have completed or plan to complete the required coursework, as long as space is available.

An application form must be completed and submitted to the College along with the required \$75 *non-refundable* application fee. The following materials also must be sent to the Office of Admissions:

- List of courses in progress and/or planned
- Official transcript from high school and each college attended
- One (1) letter of recommendation from a science teacher

Pending approval of the application, an interview will be required for admission. Applicants who have studied for fewer than 10 years where English is the language of instruction are required to submit scores from the Test of English as a Foreign Language (TOEFL) or the Test of Spoken English (TSE). A minimum score on the TOEFL of 474 paper-based (70% of the maximum score of 677), or 84 Internet-based (70% of the maximum score of 120); and a minimum of 50 on the TSE must be achieved to be considered for admission.

Once a student is notified of acceptance, a non-refundable deposit of \$400, along with the signed Enrollment Confirmation Form, will be required to reserve a place in the incoming class as long as space remains available. In the event that enrollment exceeds capacity, ACPHS reserves the right to return the admissions deposit on the date received. Failure to submit a final transcript and all required forms may result in the withdrawal of a student's acceptance. The College reserves the right to use a wait list for qualified students.

Required Coursework for 2nd Year Transfer Students into the Bachelor of Science in Pharmaceutical Sciences Program:

General Biology	8 semester hours
General Chemistry	8 semester hours
Statistics	3 semester hours
English	6 semester hours
Liberal Arts electives	6 semester hours

Required Coursework for 3rd Year Transfer Students into the Bachelor of Science in Pharmaceutical Sciences Program:

General Biology	8 semester hours
General Chemistry	8 semester hours
Organic Chemistry	8 semester hours
General Physics	8 semester hours
Calculus I	4 semester hours
Statistics	3 semester hours
English	9 semester hours
Directed elective	9 semester hours
Liberal Arts electives	6 semester hours

Liberal Arts electives include art, music, sociology, history, psychology, anthropology, foreign language, political science, economics and English. Other electives include any course that is not required in the standard curriculum list above.

Directed electives are courses selected with the help of an academic advisor that further the student's career goals. Directed electives include but are not limited to science courses that are not required in the BSPS program or other courses that directly support the student's academic or career goals. Examples of BSPS Directed Elective courses include cell biology, immunology, microbiology, histology, genetics, hematology, clinical microbiology, immune-hematology, clinical immunology, pharmacology II, pharmacology III, pharmacology IV, biopharmaceutics, bioorganic chemistry, drug discovery and development, advanced immunology, drug design and synthesis, plant biochemistry and phytomedicinals, clinical chemistry, US and Global Health Care Systems, pharmacy administration, pharmacoeconomics and health policy, independent study and others, with the approval of the program director.

No credit will be accepted for grades lower than "C" (C- is not acceptable). Physical education courses are not acceptable for transfer. Pass/Fail credits will be granted only for first-year courses and/or liberal arts electives. ACPHS reserves the right to refuse the transfer of any previously earned college credits.

SCHOOL OF PHARMACY AND PHARMACEUTICAL SCIENCES MASTERS PROGRAMS

MASTER OF SCIENCE IN PHARMACEUTICAL SCIENCES (MSPS):

The Albany College of Pharmacy and Health Sciences Master of Science degree in Pharmaceutical Sciences (MSPS) program educates students in the scientific disciplines required for the discovery, development and evaluation of new drugs and other pharmaceutical products. The program is focused on the career goals of individual students and offers both thesis and non-thesis, and full- and part-time, options for completing the degree. Students who elect the thesis option will be mentored through thesis research by a thesis advisor and a thesis committee of at least three faculty. Students who elect the non-thesis option will complete a capstone project in their field and have the option of interfacing pharmaceutical sciences with business courses in management, marketing and regulatory science. Graduates of the MSPS program are well prepared to continue graduate education by pursuing a Ph.D. degree or by entering medical school or other advanced health related academic programs, or they may be employed in the pharmaceutical or biotechnology industry or government agencies such as the Food and Drug Administration (FDA) or the National Institutes of Health (NIH).

MSPS PROGRAM OF STUDY:

The MSPS program offers concentrations in pharmacology (drug discover) and pharmaceuticals (drug development). The curriculum consists of a core group of required courses to be taken during the first academic year. Students will select one of two concentrations, either pharmacology or pharmaceuticals, each of which has discipline specific course requirements. Students who elect to pursue thesis research will select a thesis advisor in their field of study and complete a master's thesis. *Total Required Credit Hours: 33.*

CORE COURSES REQUIRED FOR BOTH CONCENTRATIONS:

The following courses are required for both the pharmacology and pharmaceuticals concentrations for the thesis option. Students who elect the non-thesis option are not required to take Research Rotation or Thesis Research but must complete a three credit hour capstone writing project.

Core Required Courses:

Foundations of Pharmaceutical Sciences (2)
Experimental Design and Data Analysis (2)
Pharmaceutical Sciences Journal Club (1) (2 semesters)
Ethics in Research (1)
Research Rotation (2)
Thesis Research (8)

MSPS COURSES REQUIRED FOR THE PHARMACOLOGY CONCENTRATION:

The following courses are required for the pharmacology concentration, thesis option. Students who elect the non-thesis option are required to complete additional elective courses.

Pharmacology Required Courses:

- Pharmacology I (2)
- Pharmacology II (3)
- Pharmacology III (3)
- Pharmacology Seminar (2)
- One Pharmacology Elective (2-3)
- Electives (3-4)

Sample MS in Pharmaceutical Sciences Curriculum: *Pharmacology Concentration*

(An example of a typical MSPS curriculum layout)

Year 1					
<i>Fall Semester</i>			<i>Spring Semester</i>		
Course #	Course Description	Credits	Course #	Course Description	Credits
PSC 631	Foundations of Pharm Sciences	2	PSC 671	Ethics in Research	1
PSC 632	Pharmacology I	2	PSC 633	Pharmacology II	3
PSC 672	Exp. Design and Data Analysis	2	PSC 634	Pharmacology III	3
PSC 651	Pharmaceutical Sciences Journal Club	1	PSC 651	Pharm Sciences Journal Club	1
PSC 661	Research Rotation	2	PSC 761	Thesis Research	2
Total Credits		9	Total Credits		10

Year 2					
<i>Fall Semester</i>			<i>Spring Semester</i>		
Course #	Course Description	Credits	Course #	Course Description	Credits
TBD	Pharmacology Seminar	2	PSC 761	Thesis Research	4
TBD	Pharmacology Elective	3			
TBD	Elective	3			
PSC 761	Thesis Research	2			
Total Credits		10	Total Credits		4

MSPS COURSES REQUIRED FOR THE PHARMACEUTICS CONCENTRATION

The following courses are required for the pharmaceuticals concentration. Students who elect the non-thesis option are required to complete a three credit hour capstone writing project and additional elective courses.

Pharmaceutics Required Courses:

- Advanced Pharmaceutics I (3)
- Advanced Pharmaceutics II (3)
- Pharmaceutics Seminar (2)
- Two Pharmaceutics Electives (4-6)
- Electives (2-4)

Sample MS in Pharmaceutical Sciences Curriculum: *Pharmaceutics Concentration*

(An example of a typical curriculum layout)

Year 1					
<i>Fall Semester</i>			<i>Spring Semester</i>		
Course #	Course Description	Credits	Course #	Course Description	Credits
PSC 631	Foundations of Pharm. Sciences	2	PSC 671	Ethics in Research	1
PSC 641	Advanced Pharmaceutics I	3	PSC 642	Advanced Pharmaceutics II	3
PSC 651	Pharmaceutical Sciences Journal Club	1	PSC 651	Pharm Sciences Journal Club	1
PSC 672	Exp. Design and Data Analysis	2	TBD	Pharmaceutics Elective	3
PSC 661	Research Rotation	2	PSC 761	Thesis Research	2
Total Credits		10	Total Credits		10

Year 2					
<i>Fall Semester</i>			<i>Spring Semester</i>		
Course #	Course Description	Credits	Course #	Course Description	Credits
PSC 852	Pharmaceutics Seminar	2	PSC 761	Thesis Research	4
TBD	Pharmaceutics Elective	3			
TBD	Elective	2			
PSC 761	Thesis Research	2			
Total Credits		9	Total Credits		4

DUAL BACHELOR AND MASTER OF SCIENCE IN PHARMACEUTICAL SCIENCES

The Albany College of Pharmacy and Health Sciences' five-year dual bachelor and master degree in Pharmaceutical Sciences provides a strong foundation in the pharmaceutical sciences. This is a research intensive program designed for students with a strong commitment to research. Graduates from this program will be well-prepared for entrance into PhD programs in the basic and pharmaceutical sciences but the program is not restricted to those committed to a research career. The BS/MS in Pharmaceutical Sciences program will enhance a student's ability to think critically and strengthen their credentials for admission to medical school, as well as dental, veterinary and other post-graduate professional programs. The BS/MS program will also position graduates for highly competitive entry-level jobs in the pharmaceutical and biotechnology industries or government regulatory agencies.

How Does the Curriculum for the BS/MS in Pharmaceutical Sciences Curriculum differ from the independent BS and MS Programs?

The dual BS/MS in Pharmaceutical Sciences program reduces the total credit requirements of the two programs by 12 credit hours. Students must complete all course requirements except for the following:

Foundations of Pharmaceutical Sciences (PSC 431) is not required in the BS/MS program and is replaced by Foundations of the Pharmaceutical Sciences (PSC 631) which covers essentially the same course material at a graduate level. This reduces the total credit hour requirement by 2 credit hours.

The BS program requires students to take 21 credit hours of Directed Electives. The BS/MS program requires students to take 13 credit hours of Directed Electives and 8 credit hours of MS electives for a combined total of 21 credit hours. The BS/MS program thus reduces the total elective requirement by 8 credit hours.

The BS/MS in Pharmaceutical Sciences requires students to take several research focused undergraduate courses that are electives in the BSPS program, including Pharmaceutical Analytical Techniques I and II, two semesters of BSPS Independent Research or equivalent research experience. These courses fulfill the requirement for Directed Electives.

Research Rotation is not required in the BS/MS program. The objectives of this initial research experience will be met by completing BSPS Independent Research or equivalent research experience at ACPHS. This reduces the total credit hour requirement by 2 credit hours.

Total Credit Hours for the Pharmacology Concentration:

BS in Pharmaceutical Sciences:	126 credits
MS in Pharmaceutical Sciences:	<u>33</u> credits
Total	159

BS/MS in Pharmaceutical Sciences: 147 credits

Total Credit Hours for the Pharmacology Concentration:

BS in Pharmaceutical Sciences:	125 credits
MS in Pharmaceutical Sciences:	<u>33</u> credits
Total	158

BS/MS in Pharmaceutical Sciences: 146 credits

Who Should Apply

Students enrolled in the BSPS program may apply for admission to the dual BS/MS in Pharmaceutical Sciences program after completing four semesters of course work. Students with a strong commitment to research may apply for provisional admission after their first year at the College. A GPA of 3.0 is required for admission; research experience is also an asset, although not an absolute requirement. Students who elect to transfer into the BS/MS in Pharmaceutical Sciences program from other ACPHS programs or from other Academic Institutions should follow the guidelines for transfer students outlined in the section of this catalog on the BSPS program.

How to Apply

To apply, students should complete the MS in Pharmaceutical Sciences application form and submit it, along with a transcript and three letters of recommendation, to the Office of Graduate Education. The GRE exam is not required for admission to the BS/MS in Pharmaceutical Sciences program.

Dual BS/MS in Pharmaceutical Sciences Curriculum: *Pharmacology Concentration*

(An example of a typical curriculum layout)

Year 1					
Fall Semester		Credits	Spring Semester		Credits
BIO 101	General Biology I	4	BIO 102	General Biology II	4
CHE 101	General Chemistry I	4	CHE 102	General Chemistry II	4
MAT 115	Introduction to Laboratory Data	2	MAT 145	Elementary Statistics	3
HUM 110	Pre-Modern World	3	HUM 120	Modern World	3
BSS 102	Seminar in Health Professions	1	COM 115	Principles of Communication	3
	Elective	3			
	Total	17		Total	17
Year 2					
Fall Semester		Credits	Spring Semester		Credits
CHE 211	Organic Chemistry I	4	CHE 221	Organic Chemistry II	4
PHY 212	College Physics I	4	PHY 222	College Physics II	4
HUM 210	Contemporary World	3		Elective	3
MAT 121	Calculus I	4		Elective	3
				Directed Elective	3
	Total	15		Total	17
Year 3					
Fall Semester		Credits	Spring Semester		Credits
PSC 311	Biochemistry	3	PSC 312	Molecular Biology	3
PSC 322	Physiology/Pathophysiology I	4	PSC 322	Physiology/Pathophysiology II	4
PSC 361	Pharmaceutical Analytical Tech I	3	PSC 362	Pharmaceutical Analytical Tech II	3
PSC 253	Scientific Communication	3	PSC 412	BSPS Independent Research	3
PSC 412	BSPS Independent Research	3	TBD	Elective	3
	Total	16		Total	16
Year 4					
Fall Semester		Credits	Spring Semester		Credits
PSC 631	Foundations of Pharm. Science	2	PSC 633	Pharmacology II	3
PSC 632	Pharmacology I	2	PSC 634	Pharmacology III	3
PSC 672	Experimental Design & Data Anal	2	PSC 671	Ethics in Research	1
PSC 454	Drug Discovery & Drug Development	3	TBD	BSPS Pharmacology Elective	3
TBD	Elective	3	TBD	Elective	3
PSC 761	Thesis Research	2	PSC 761	Thesis Research	2
	Total	14		Total	15
Year 5					
Fall Semester		Credits	Spring Semester		Credits
PSC 761	Thesis Research	2	PSC 761	Thesis Research	2
PSC 651	Pharmaceutical Sciences Journal Club	1	PSC 651	Pharmaceutical Sciences Journal Club	1
TBD	Directed Elective	3	PSC 851	Pharmacology Seminar	2
TBD	Directed Elective	3	TBD	Pharmacology MS Elective	2
TBD	MS Elective	2		MS Elective	2
	Total	11		Total	9

Dual BS/MS in Pharmaceutical Sciences Curriculum: *Pharmaceutics Concentration*

(An example of a typical curriculum layout)

Year 1					
Fall Semester		Credits		Spring Semester	
					Credits
BIO 101	General Biology I	4	BIO 102	General Biology II	4
CHE 101	General Chemistry I	4	CHE 102	General Chemistry II	4
MAT 115	Introduction to Laboratory Data	2	MAT 145	Elementary Statistics	3
HUM 110	Pre-Modern World	3	HUM 120	Modern World	3
BSS 102	Seminar in Health Professions	1	COM 115	Principles of Communication	3
	Elective	3			
	Total	17		Total	17
Year 2					
Fall Semester		Credits		Spring Semester	
					Credits
CHE 211	Organic Chemistry I	4	CHE 221	Organic Chemistry II	4
PHY 212	College Physics I	4	PHY 222	College Physics II	4
HUM 210	Contemporary World	3	MAT 211	Calculus II	3
MAT 121	Calculus I	4	PSC 253	Scientific Communication	3
			PSC 251	Pharmaceutical Sci Journal Club	1
	Total	15		Total	15
Year 3					
Fall Semester		Credits		Spring Semester	
					Credits
PSC 311	Biochemistry	3	PSC 312	Molecular Biology	3
PSC 322	Physiology/Pathophysiology I	4	PSC 322	Physiology/Pathophysiology II	4
PSC 341	Pharmaceutics I	3	PSC 341	Pharmaceutics II	3
PSC 361	Pharmaceutical Analytical Tech I	3	PSC 362	Pharmaceutical Analytical Tech II	3
PSC 412	BSPS Independent Research	3	PSC 412	BSPS Independent Research	3
	Total	16		Total	16
Year 4					
Fall Semester		Credits		Spring Semester	
					Credits
PSC 631	Foundations of Pharm. Science	2	PSC 642	Advanced Pharmaceutics II	3
PSC 641	Advanced Pharmaceutics I	3	PSC 671	Ethics in Research	1
PSC 672	Experimental Design Data Analysis	2	TBD	Elective	3
PSC 441	Pharmacokinetics	3	TBD	Elective	3
TBD	Elective	3	TBD	Elective	3
PSC 761	Thesis Research	2	PSC 761	Thesis Research	2
	Total	15		Total	15
Year 5					
Fall Semester		Credits		Spring Semester	
					Credits
PSC 761	Thesis Research	2	PSC 761	Thesis Research	2
PSC 651	Pharmaceutical Sci Journal Club	1	PSC 651	Pharmaceutical Sci Journal Club	1
TBD	Pharmaceutics MS Elective	2	TBD	Pharmaceutics MS Elective	2
	MS Elective	3	PSC 852	Pharmaceutics Seminar	2
	Elective	3	TBD	MS Elective	2
	Total	11		Total	9

ACADEMIC STANDARDS FOR SCHOOL OF PHARMACY AND PHARMACEUTICAL SCIENCES GRADUATE PROGRAMS

Students enrolled in the Master of Science (MS) programs must adhere to the following academic standards:

GPA and grade requirements:

Graduate students must maintain a cumulative GPA of 3.0 or higher to be considered in good academic standing. Students enrolled in a thesis program must also demonstrate satisfactory progress in thesis research as documented by recommendations from the thesis advisor and the grades of related courses to be considered in good academic standing. Students must earn a grade of B or better in all required graduate courses.

Probation:

A student will be placed on academic probation if his/her cumulative GPA falls below 3.0 or if he/she has not made satisfactory progress towards completion of the degree. A recommendation for probation due to unsatisfactory progress may be initiated by the student's advisor if the advisor considers a student's performance to be unsatisfactory irrespective of a student's grade-point average. The decision to place a student on probation will be made by the Graduate Academic Standing Committee of the ACPHS Graduate Council.

Removal from Probation:

A student placed on probation due to a cumulative GPA below 3.0 must restore their GPA to 3.0 or above within two semesters for full-time students or 12 credit hours for part-time students to be removed from probation. Students placed on academic probation due to unsatisfactory progress may be restored to good academic standing following notification by the advisor /Program Director that the student is making satisfactory progress to the Graduate Academic Standing Committee. Such notification must be received within two regular academic semesters. A student who is not restored to good academic standing by end of the specified time or credit hour requirement will be dismissed from the program.

Dismissal:

A student may be dismissed from a graduate program for any of the following reasons: (a) Failure of a student on probation due to a GPA less than 3.0 or unsatisfactory progress to achieve good academic standing within the specified time or credit hour requirement; (b) Repeated failure of the thesis defense or, for students enrolled in a non-thesis option, repeated failure of the culminating experience or special project; (c) Failure to meet published Programmatic, Departmental or College requirements; (d) A recommendation of dismissal under the ACPHS Student Disciplinary or Honor Code; (e) Receiving F grade in any required graduate courses.

Appeal of dismissal:

A student who has been dismissed from a graduate program may appeal to the Dean of Graduate Studies for reinstatement. The appeal must be made in writing within 14 consecutive days after receipt of the notice of dismissal. The appeal will be reviewed by the Graduate Academic Standards Appeals Committee appointed by the Dean. The Dean will review the appeal and recommendation from the Graduate Academic standards Appeals Committee. The decision of the Dean is final and will be communicated in writing to the student, the Graduate Academic Standards Appeals Committee, the Graduate Academic Standards Committee, the academic advisor, the Program Director, and the Registrar.

Requirements for full-time enrollment status:

A full-time graduate student is defined as one who is taking 9 or more credit hours during the spring and fall semester. For students enrolled in a thesis based program who have completed all didactic course work and are enrolled solely in a thesis research course, full-time status is defined as a minimum of one (1) credit hour per semester.

Time duration to complete graduate degrees:

All requirements for a Master of Science degree must be completed within three calendar years for full-time students and not more than seven years, for part-time students. Students who fail to complete requirements for a graduate degree within the specified time period will be dismissed from the program. A student may petition for a time extension. The petition must include a plan for completion of the degree and letters of support from the faculty advisor and Program Director and must be approved by the Dean of Graduate Studies.

Expiration of graduate courses:

Graduate courses are valid for no more than seven years. Students will be required to repeat courses completed more than seven years before finishing the requirements for a degree.

Transfer credits:

Up to nine (9) credit hours of graduate level didactic credit may be transferred from other accredited academic institutions subject to approval by the Program Director. Transfer courses must have a grade of B- or higher. Courses taken on a pass/fail basis will not be considered for transfer. Credits earned from other institutions will be subject to the same seven year expiration rule as for courses taken at ACPHS.

TRANSFER STUDENTS

IMPORTANT DEADLINES FOR TRANSFER APPLICANTS:

FEBRUARY 1

Admission Priority Deadline

Free Application for Federal Student Aid (FAFSA) Due

INSTRUCTIONS FOR BACHELOR OF SCIENCE TRANSFER STUDENTS

To ensure full consideration and place in the incoming class, it is highly recommended that the completed application be submitted by the priority deadline of February 1. Applications for transfer admission into the second or third year of the Bachelor of Science programs will be accepted from students who have completed or plan to complete the required coursework, as long as space is available.

An application form must be completed and submitted to the College along with the required \$75 *non-refundable* application fee. The following materials also must be sent to the Office of Admissions:

- List of courses in progress and/or planned
- Official transcript from high school and each college attended
- One (1) letter of recommendation from a science teacher

Pending approval of the application, an interview will be required for admission. Applicants who have studied for fewer than 10 years where English is the language of instruction are required to submit scores from the Test of English as a Foreign Language (TOEFL) or the Test of Spoken English (TSE). A minimum score on the TOEFL of 474 paper-based (70% of the maximum score of 677), or 84 Internet-based (70% of the maximum score of 120); and a minimum of 50 on the TSE must be achieved to be considered for admission.

Once a student is notified of acceptance, a non-refundable deposit of \$400, along with the signed Enrollment Confirmation Form, will be required to reserve a place in the incoming class as long as space remains available. In the event that enrollment exceeds capacity, ACPHS reserves the right to return the admissions deposit on the date received. Failure to submit a final transcript and all required forms may result in the withdrawal of a student's acceptance. The College reserves the right to use a wait list for qualified students.

Required Coursework for 2nd Year Transfer Students into the Bachelor of Science in Pharmaceutical

Sciences Program:

General Biology	8 semester hours
General Chemistry	8 semester hours
Statistics	3 semester hours
English	6 semester hours
Liberal Arts electives	6 semester hours

Required Coursework for 3rd Year Transfer Students into the Bachelor of Science in Pharmaceutical Sciences Program:

General Biology	8 semester hours
General Chemistry	8 semester hours
Organic Chemistry	8 semester hours
General Physics	8 semester hours
Calculus I & II	8 semester hours
Statistics	3 semester hours
English	9 semester hours
Directed elective	9 semester hours
Liberal Arts electives	6 semester hours

Liberal Arts electives include art, music, sociology, history, psychology, anthropology, foreign language, political science, economics and English. Other electives include any course that is not required in the standard curriculum list above.

Directed electives are courses selected with the help of an academic advisor that further the student's career goals. Directed electives include cell biology, immunology, microbiology, histology, genetics, hematology, clinical microbiology, immune-hematology, clinical immunology, pharmacology II, pharmacology III, pharmacology IV, biopharmaceutics, bioorganic chemistry, drug discovery and development, advanced immunology, drug design and synthesis, plant biochemistry and phytomedicinals, clinical chemistry, US and Global Health Care Systems, pharmacy administration, pharmacoeconomics and health policy, independent study and others, with the approval of the program director.

No credit will be accepted for grades lower than "B" (B- is not acceptable) or for physical education courses. Pass/Fail credits will be granted only for first-year courses and/or liberal arts electives. ACPHS reserves the right to refuse the transfer of any previously earned college credits.

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SCHOOL OF PHARMACY & PHARMACEUTICAL SCIENCES FACULTY

SCHOOL OF PHARMACY AND PHARMACEUTICAL SCIENCES

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Mehdi Boroujerdi, Ph.D.

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SCHOOL OF PHARMACY & PHARMACEUTICAL SCIENCES FACULTY

DEPARTMENT OF PHARMACY PRACTICE

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Director of Experiential Education

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1st year Fellow

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Katie Cardone, Pharm.D.
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Pharmacy Administration

Laura Daigle, Pharm.D.
Instructor
Clinical Pharmacy

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Pharmacy Administration

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Darren Grabe, Pharm.D.
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Clinical Pharmacy

Michael Kane, Pharm.D.
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David Kile, M.S.
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Clinical Pharmacy

Tom Lodise, Pharm.D.
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Shannon Miller, Pharm.D.
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Clinical Pharmacy

SCHOOL OF PHARMACY & PHARMACEUTICAL SCIENCES FACULTY

DEPARTMENT OF PHARMACY PRACTICE

Albany Campus (Continued)

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Assistant Professor/Clinical Pharmacy

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Amit Pai, Pharm.D.
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Nimish Patel, Pharm.D.
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Melinda Reed, B.S., MBA
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Aimee Strang, Pharm.D.
Associate Professor/Clinical Pharmacy

Terry Towers, B.S.
Instructor/Pharmacy Practice

Tanya Vadala, Pharm.D.
Assistant Professor/Pharmacy Practice

Stephanie Young, B.S.
Instructor/Pharmacy Practice

Jerry Young, M.S.
Instructor
Pharmacy Practice

Faculty Emeriti

Barry S. Reiss, R.Ph.
Professor Emeritus of Pharmacy

DEPARTMENT OF PHARMACY PRACTICE

Vermont Campus

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Assistant Professor/Clinical Pharmacy

Rick Weingarten, B.S.
Instructor/Pharmacy Practice

Sommer Zarbock, Pharm.D.
Assistant Professor/Clinical Pharmacy

GUIDE TO COURSE PREFIXES

Art	ART
Biomedical/Health Sciences	BHS
Biology	BIO
Chemistry	CHE
Introductory & Advanced Pharmacy Practice Experience Rotations	CLK
Clinical Laboratory Sciences	CLS
Communications	COM
Cytotechnology	CYT
Economics	ECN
Ethics	ETH
General	GEN
Health & Human Sciences	HHS
History	HIS
Health Research and Informatics	HRI
Social Sciences	HSS
Humanities	HUM
Integrated Problem Solving	IPS
Literature	LIT
Mathematics	MAT
Music	MUS
Pharmacy Administration	PAD
Pharmacy	PHD
Philosophy	PHI
Pharmacy	PHM
Physics	PHY
Pharmaceutical Sciences	PSC
Pharmacy Skills Lab	PSL
Psychology	PSY
Pharmacotherapy/Pharmacology/ Medicinal Chemistry	PTP
Sociology	SOC
UGC	Union Graduate College

ACPHS COURSE DESCRIPTIONS

Courses with the following prefixes can be used to satisfy the liberal arts requirement: HUM, ENG, ART, PHI, ETH, PSY, HIS, MUS, SOC; as well as BHS 230 and BHS 350. COM courses at the 100 and 200 level can also be used to satisfy the liberal arts requirement.

Courses with a prefix of LIT are cross listed as ENG. Students wishing to have the ENG number appear on their transcript should contact the Registrar's office.

Courses with a "G" at end of prefix and number are graduate courses.

ART 105 *Practical Applications of Visual Perception (formerly LAS 141)*: This course assumes that anyone can learn to draw better if they first learn to see better. Working closely with Betty Edwards' *Drawing on the Right Side of the Brain*, the course will present the different problems people encounter when trying to draw what they see (or think they see). Class time is spent drawing. Students keep a sketchbook outside of class, write three essays and one museum paper, participate in biweekly critiques and turn in a portfolio of drawings and papers at the end of the semester. **(3)**

ART 110 *History of Cinema (formerly LAS 261)*: This course will trace the history of film from its beginnings in the 1890s until today. Through an investigation of the technological, economic, social and aesthetic influences on cinema, the course provides students with a background in film history as well as critical and analytical skills to read not only films but also visual texts. **(3)**

ART 210 *Masterpieces of Art (formerly LAS 118)*: This course investigates various masterpieces of Western art, including architecture, painting and sculpture. Each class meeting is devoted to a separate work of art, and students discuss what makes that work a masterpiece. Individual perceptions and reactions are encouraged; for this reason, students keep a journal and turn it in four times during the semester. **(3)**; **Prerequisite:** HUM 102

ART 215 *Figure Drawing (formerly LAS 201)*: The human figure presents special challenges for the artist. This course covers a brief history of the human figure in art and how to draw the figure from the inside out, beginning with studies of the skeleton and muscles, and then copying works of the masters and drawing from a model. **(3)**
Prerequisite: Art 105 Recommended

BHS 200 *Good Laboratory Practice*. The reliance on laboratory data, in clinical and research settings, and confident use in diagnostics and regulatory approval of drugs and chemicals, stems from the reliability and validity of the assays used and in maintaining records of all conditions that may influence the results. These results may be influenced by physical and human factors. It is therefore, only of use if it meets stringent standards divorced from these environmental influences. This course

introduces the student to measures taken to insure quality, inter- and intra-assay and assayer reliability. The imperative of instrument calibration and maintenance and the ability to troubleshoot problems that may arise during performance of analyses will also be addressed. In addition, appropriate maintenance of documentation of all procedures will be delineated. Evaluation, in this course relies, on demonstrable proficiency in QC-GLP. Students in BT programs are required to implement these standards in all future laboratory courses. This is an elective for non-BT students. **(2)**; **Prerequisites:** BIO101; BIO102; CHE101; CHE102; MAT145 or permission of Instructor.

BHS 201 *Medical Terminology (Formerly BMT201)* This course will provide a systems approach to learning medical terminology. The course is self-paced and offered online. It will present medical terminology through a unique combination of anatomy and physiology, word-building principles, and phonetic "sounds like" pronunciations. It is well suited for students who want to learn medical terminology in the context of anatomy and physiology. This is an elective for non-BT students. **(3)**

BHS 225 *Functional Anatomy*. This course is designed primarily for those pursuing careers in the Biomedical and Laboratory sciences. It will provide the student with a foundation for understanding the structural substrate underlying homeostatic mechanisms. Integration, rather than segregation, between structure and function are emphasized. This course will enable the student to be conversant in the structure and function of the human body, the integration of systems and how they influence one another. This is illustrated in a multidisciplinary fashion: morphology, physiology, biochemistry and clinical manifestations. This course is an essential basis of understanding physiology, pathophysiology and clinical correlations. Different physiological measurements/ approaches used in diagnosis and understanding system function are stressed as essential components of devising effective therapy. The laboratory component includes relevant dissection of large mammalian specimens, physical analysis of range of motion and neurological exam. This is an elective for non-BT students. **(4)**; **Prerequisites:** BIO101; BIO102; CHE101; CHE102; or permission of Instructor.

BHS 230 *Sophomore Seminar.* The course facilitates the student's exposure to scientific literature and in developing the ability to critically evaluate the literature in terms of its validity and conclusions. Students are expected to master scientific writing skills, information retrieval, bibliography preparation per accepted scientific convention. Writing skills will be polished and demonstrable through preparation of a research presentation and critique. This is an elective for non-BT students. **(3)**

BHS 250 *Microbiology and Infectious Disease.* This course is the study of methods used for collection, transport, processing, identification and reporting of bacteria from specimens taken from the human body. Students will be shown what is involved in determining the significance of different organisms in various clinical specimens and disease states. The principles of infection control will also be discussed. Students will be taught how to analyze and record laboratory data, comply with all safety procedures and recognize the limitations of a diagnostic microbiology laboratory. Students will also observe, practice and establish professional behaviors necessary to be a successful clinical laboratory scientist. **(4); Prerequisites:** BIO101; BIO102; CHE101; CHE102; or permission of Instructor.

BHS 300 *Integrated Biomedical Sciences I: Biochemistry and Cell Biology.* An integration of Biochemistry in the context of Cell structure and function and as it relates to laboratory diagnostics and biomedical research. Cell structure and the biomedical relevance of biomolecules in homeostatic and pathophysiological processes will be emphasized. Laboratory exercises are designed to illustrate key concepts in Biochemistry and Cell Biology, as well as laboratory practices. CHE221, co-requisite. **(5)**

BHS 310 *Biochemical and Cellular Techniques* is a laboratory course complementing BHS 300. Laboratory exercises focus on illustrating and applying biochemical and cellular concepts discussed in the lectures. **(2); Prerequisite:** Concurrent registration in BHS300.

BHS 320 *Integrated Biomedical Sciences II.* The course is designed to provide an integrative foundation on the basic and essential physiological mechanisms involved in homeostatic function and the development of disease; the functional changes associated with disease processes and the clinical correlations of disease. Intrinsic and extrinsic etiological factors, cellular processes and pharmacopathological mechanisms participating in the pathogenesis, and the development of biochemical, physiological and morphological lesions will be discussed. Furthermore, the physiological, and pharmacological changes occurring as a consequence of disease processes will be delineated. A systemic approach exemplifying disease processes will be used. This course will be the basis for delineating diagnostic and therapeutic approaches to disease

management. Integrated Biomedical Science II specifically focuses on the physiology, basic mechanisms of pathology and clinical correlates of the cardiopulmonary and renal systems. **(5); Prerequisites:** BIO101; BIO102; CHE101; CHE102; BHS300 or permission of Instructor.

BHS 330 *Integrated Biomedical Sciences III.* A continuation of the Integrated Biomedical Science sequence, Integrated Biomedical Science III specifically focuses on the physiology, basic mechanisms of pathology and clinical correlates of the digestive, reproductive and nervous systems. **(5); Prerequisites:** BIO101; BIO102; CHE101; CHE102; BHS300; BHS320 or permission of Instructor.

BHS 340 *Immune System in Health & Disease.* The course in immunology is designed to provide a foundation on the essential mechanisms involved in the development of target-specific defenses. The cells, processes, and chemical mediators participating in the immune response, and the development of immunological memory will be discussed. The reasoning behind medical practices of prophylaxis through vaccination, immunosuppression, transplantation and diagnostic utility of the immune system will also be discussed. The immune system as a target and effector of disease will be illustrated through discussion of immunodeficiency, hypersensitivity responses, and autoimmunity. Finally, intervention in immune-based disorders will be illustrated. **(4); Prerequisites:** BIO101; BIO102; CHE101; CHE102; or permission of Instructor.

BHS 350 *Medical Ethics.* Medical professionals, including laboratory diagnosticians and researchers, are privy to sensitive information regarding patients, proprietary information and legally-actionable data. The scope of responsibility, legal and ethical, will be discussed and illustrated through case studies. In addition, emerging issues of stem cell research, embryos, genetic testing, to name a few, will be discussed. This is an elective for non-BT students. **(3)**

BHS 411 *Laboratory Management & Education.* This course presents the principles of laboratory administration including the healthcare delivery system in the US, reimbursement methodologies for laboratory testing, accreditation and inspection process, total quality management, principles of adult education, research design and laboratory information systems management. Topics related to organizational theory will be reviewed including supervision, motivation, teamwork development, and diversity in the workplace. This is an elective for non-BT students. **(3)**

BHS 450 *Senior Seminar in Biotechnology.* This is a student-driven course dealing with discussion of contemporary issues and state-of-the-art diagnosis and technology in medicine. The student is required to critically review the literature and present during class

time while incorporating knowledge gained through previous years in the didactic and laboratory components. The course culminates in a student-sponsored research symposium open to the college community. The student will be assigned an advisor based on the topic area. **(3)**

BHS 500 *Applied Neuroscience I: Structure and Function.*

This course is designed primarily for those seeking a career in the medical or biomedical professions. It will provide the student with a foundation for understanding neurological dysfunction and areas of research in the neurosciences. Integration, rather than segregation, between structure and function are emphasized. This course will enable the student to be conversant in the molecular and cellular structure and function of the nervous system, with emphasis on neuroplasticity and integrative function. The organizing theme is how neurological function is influenced by disease or trauma, learning and developmental change. This is illustrated in a multidisciplinary fashion: morphology, physiology, biochemistry and clinical manifestations. Examples of pathological, occupational and environmental causes of neurological disease are highlighted through lectures and neurocognitive exercises. The convergence of neurodegenerative mechanisms and approaches used in diagnosis and understanding of impairment are stressed as essential components of devising effective therapy. This is an elective for non-BT students. **(3)**; Prerequisites: BIO101; BIO102; CHE101; CHE102; or permission of Instructor.

BHS 510 *Applied Neuroscience Laboratory.* This laboratory course is designed primarily for those seeking a career in the medical or biomedical professions and taking BHS400.

It will provide the student with a foundation for understanding neurological dysfunction and areas of research in the neurosciences. Integration, rather than segregation, between structure and function are emphasized. Through microscopy, brain dissections and interactive models, the student to be conversant in the cellular and anatomical substrate of neural function and dysfunction. Through NeuroCog exercises, a correlation between brain region and neurological disorders will be demonstrated. Correlation with lecture material is stressed. Active participation is required. Evaluation is through oral examination and maintenance of a laboratory notebook. This is an elective for non-BT students. Co-requisite BHS 400 Applied Neuroscience I **(1)**

BHS 520 *Applied Neuroscience II: Neuropharmacology and Neurotoxicology.*

This course comprises an elaboration and discussion of the biochemistry, molecular biology and cellular neurobiology of neurotransmission and vulnerability of the nervous system to disease. Capitalizing on this understanding, the pharmacological rationale for therapeutic intervention in the central, peripheral and autonomic nervous systems are discussed, as are the unique vulnerabilities of the nervous system to environmental and occupational toxicants. This is an

elective for non-BT students. **(3)**; Prerequisites: BIO101; BIO 102; CHE 101; CHE 102; or permission of Instructor.

BHS 530 *Independent Study in Biotechnology and Health Sciences.*

This is a mentor-student proposed elective course project dealing with contemporary issues in biotechnology and medicine. The student under faculty advisement must submit a proposal to the Department Chair for approval. Approval must also be sought if students wish to use this course for remediation of credits. The topic of the course may be didactic, literature review or laboratory research. Only students in their junior and senior years are eligible. **(1-3)**

BHS 610 G; BHS 620 G *Cellular Pathophysiology and Histology I and II.*

These courses survey the biochemical and molecular mechanisms underlying disease processes and precipitating cellular change and death. Events of cellular energetics, signaling, gene expression and mutations will be highlighted. The morphological, pathological and clinical correlates of these cellular events will be presented after a histological foundation is established. Basic concepts of cell swelling, inflammation, atrophy, apoptosis, necrosis, dysplasia, anaplasia and neoplasia will be illustrated and identified through microscopy. Once principles are established, a systems approach is taken to demonstrate system-specific pathology. For other than those enrolled in the joint BS/MS in Biotechnology-Cytotechnology concentration and the MS in Cytotechnology and Molecular Cytology, this sequence may be substituted for with appropriate courses numbered 600 or over with the approval of the department chair. **(3 each)**

BHS 630 G *Advanced Good Laboratory Practices and Laboratory Management.*

This course provides training in the principles of good laboratory practice for personnel of laboratories who wish to produce test results that are fit for the purpose and which would stand up to the scrutiny of inspection. This allows for the reliability, retrieval and accountability for test results. These procedures are applicable to diagnostic laboratory procedures, research, forensic and in the drug safety and development sector. Topics include safety, Clinical Laboratory Improvement Act of 1988 (CLIA) government regulations, and quality assurance in the laboratory. Students will learn and apply management and quality assurance skills and concepts applicable to different laboratory settings, including specimen collection, and performance per CLIA'88-and /or moderate-complexity testing. Students will also demonstrate competency in a wide variety of techniques used to collect, process and test specimens. **(3)**

BHS 640 G *Medical Ethics and Research.*

This course will be discussion format based on ethical issues involved in healthcare and medical research in general, and human studies, in particular. Students will have focused reading on the ethical issues involved in medical practice and

research and will apply the readings to case studies during discussion. Topics covered will include but are not limited to: Morality and research ethics, ethical issues before research committees, ethical issues involving human and animal subjects, reporting of research, and conflict of interest. Students will be required to also attain NIH Institutional Review Board (IRB) Certification. **(3)**

BHS 650 G *Genetics and Molecular Basis of Disease*. This course lays down the foundation in basic genetic concepts with the objective of understanding the heritability and/or molecular basis of disease. Recent evidence and diagnostic procedures suggest that genetic diseases make up a large proportion of the total disease burden in both pediatric and adult populations. Today's health care practitioner and biomedical scientist must understand the science of medical genetics and the consequences of altered genomics and proteomics. Advances in the development of new and more accurate methods of diagnosing hereditary disease have led to a greater "genetic awareness" and recognition that genetics plays a role in all areas of medicine. Using a wide spectrum of examples it will illustrate the impact of mutations as found in thalassemias, sickle cell anemia, cystic fibrosis, familial Amyotrophic Lateral Sclerosis and Huntington's Disease as causes of disease. It will also discuss genetics as a predisposing factor, such as in the case of birth defects, breast cancer, Alzheimer's Disease, alcoholism and some autoimmune disorders. Environmentally-induced mutagenesis and carcinogenesis and the role of oncogenes and tumor suppressor genes will be a particular focus of the second half of the course. **(4)**

BHS 660 G *Molecular Diagnostics*. This course is an application of molecular concepts to the identification and of infectious agents, genetic risk of disease, presence and/or occurrence of mutations as a consequence of infections or toxic exposure. The use of genomic profiles as biomarkers associated with cancer and cancer risk, autoimmunity and hereditary disorders, as well as determination of histocompatibility will be discussed and performed. Biotechnology as a diagnostic and investigative tool will be discussed. In the laboratory students will learn and perform basic molecular techniques such as DNA and RNA isolation, RT-PCR, Northern and Southern blots. Students will also be exposed to the utility of microarrays and bioinformatics in medicine. The emphasis of the course is student engagement through mastering of the technology. **(4)**

BHS 665 *Biomarkers: Exposure, Susceptibility, Effects and Efficacy*. This course surveys the discovery and utility of biochemical and molecular biological indicators, or molecular metrics, for the characterization and diagnosis of exposure to etiological factors, genetic risk, deleterious effects of animate and inanimate pathogens and the successful intervention using pharmacotherapeutics. Relying on an understanding of basic principles of

physiology, cell biology, cell signaling and molecular biology, the course capitalizes on state-of-the-art literature and case studies to illustrate the use of molecular metrics in the identification of disease susceptibility, effects of toxic agents, tumor identification and the design of personalized medical intervention. **(3)**

BHS 670 G *Digital Imaging and Morphometrics*. This course exposes the student to the use of digital imaging, automation and computer-assisted analysis in the diverse areas of pathology, cytometry and genomics. The high demand for quantitative data in pathology, diagnostics, research and drug development and issues of chemical safety make it essential that today's biomedical scientist be familiar with digital technology for the preservation and transfer of biologically-derived graphic data, its analysis and interpretation. **(4)**

BHS 680 G *Research Methods and Statistics*. The objectives is to educate the student in the research skills (statistics and experimental design) and mathematical applications in the data analysis required to understand peer-reviewed studies, regulatory reports and for conducting independent research, including preparing a satisfactory research proposal. Students will gain, through hands-on experience, exercises, and examination, the ability to develop a proposal from synthesis of the literature, recognition of gaps in the area under study, alternatives not addressed by the published literature, and questions raised by published reports and the statistical analyses. Students will also be able to design, experimentally and statistically, appropriate studies that can withstand appropriate peer review.

BHS 690 G *Advanced Topics in Biotechnology*. This course focuses on timely and contemporary issue in biotechnology. It may include such topics as bioinformatics, regulatory issues, recent discoveries and/or strategies in disease diagnosis, issues of public health and disease prevention based on biotechnological breakthroughs, translational research, recent drug discovery and or diagnostic tools. This course requirement may also be satisfied with courses numbered 600 or higher depending on the student's interest and background. Other substitutions from other programs must be approved by the department chair. **(3)**

BHS 695 Systemic and Molecular Toxicology. This course is a survey of the detrimental effects of chemical exposure on biological processes. Taking an organ- and cell-specific approach, the effects of different chemical classes, industrial and therapeutic, on biochemical, molecular, structural and functional processes will be delineated. Current approaches used to document and monitor subclinical effects and early intervention based on biomarker discovery and advances in diagnostics will be illustrated. **(3)**; Prerequisites: Permission of Instructor.

BHS 701 G Master's Thesis I. In consultation with the Department Chair and Program Director, the student will identify an appropriate area of research and mentor. The student will develop a research proposal per Department Graduate guidelines. The specific topic and nature of the research will be determined by the student and mentor who will seek approval from the Chair. On receiving approval, a committee of no less than three individuals, internal or external, will be constituted to act in an advisory capacity and for the proposal defense. On successful defense of the proposal the student will commence the research. Studies involving humans must be approved by the College's IRB. Studies involving animals must be approved by IAUCC. Projects involving data collection and management must adhere to GLP requirements. **(3)**

BHS 702 G Master's Thesis II. This is a continuation of the approved proposed research project. Depending on the project and timely collection of data, the student, following an update presented to his advisory committee, may proceed with finalizing the thesis report. **(3)**

BHS 703 Master's Thesis III. Students may register for this course to complete their research project and thesis publication. **(3)**

BHS 705 Contemporary Issues in Infectious Disease. Microbial agents are among the most adaptive organisms that precipitate diseases. Because of this rapid adaptation they pose a challenge to effective therapy. This course explores contemporary microbial challenges such as HIV, West Nile Virus, HPV, multi-drug resistant TB, malaria and MRSA. Therapeutic strategies, whether through vaccination or new drug development, will be discussed through a case study approach and reading of current literature. This is an elective for non-BT students. **(3)** Prerequisites: BHS250 or equivalent or permission of Instructor.

BHS 715 Exercises in Clinical Medicine. Using actual case histories, applications of physiology, pathology, laboratory diagnostics and therapeutic approaches in management of such diseases as multiple sclerosis, amyotrophic lateral sclerosis, stroke and cancer will be illustrated through intensive classroom discussions. Reading and application of current state-of-the-art literature will be used. Students

will apply concepts mastered in the basic and applied sciences. This is an elective for non-BT students. **(3)** Prerequisites: Permission of Instructor.

BHS 725 Neuroimmunology. Parallels are drawn between the nervous and immune systems in terms of the heterogeneity in cellular structure and intercellular signaling mechanisms. Recent evidence has brought to light the intimate relationship of the two systems in terms of nervous system regulation of immune system function and psychoimmunology. Long considered an immunoprivileged site, the nervous system is now recognized as a major target of immune activity during neurodegenerative disease, neuroinflammation and neurotoxicity. Both neurons and glia, including astrocytes, oligodendrocytes and Schwann cells, have been shown to elaborate and respond to immune mediators as well as being immune effectors in homeostasis and neurological disorders. The diagnostic and therapeutic potential of understanding these interactions will be explored through lectures, discussions of timely literature and class room engagement. This is an elective for non-BT students. **(3)**; Prerequisites: BIO101; BIO102; CHE101; CHE102; BHS340 or equivalent, or permission of Instructor.

BHS 735 Case Studies in Pharmaceutical Toxicology. Following an overview of toxicological principles, the adverse effects of drugs and their interactions with other drugs and/or food, or therapeutic modification by pre-existing pathology are demonstrated through interactive case studies culled from actual clinical experiences. These include near-missed tragedies, erroneous prescriptions, therapy-induced pathologies, and pesticides masquerading as therapeutics. This draws on the students' knowledge of physiology, pathophysiology and pharmacology. This is an elective for non-BT students. **(3)**; Prerequisites: Seniors or Second Professional Year PharmD students, or permission of Instructor.

BHS 745 Environmental Lung Disease. Both as a route of systemic exposure and as a target of inhaled pathogens and chemicals, the lungs are vulnerable to infections, particulate air pollutants, including anthropogenic and manufactured nanoparticles, and irritant gases and solvents. The cellular dynamics of pulmonary architecture, resident and infiltrating immunoeffectors and chemical milieu in precipitating COPD, airway hyperreactivity, primary and secondary infections and compromised pulmonary function are explored through didactic and applied case studies. Molecular and pathopharmacological mechanisms underlying risk, pathogenesis and intervention/management will be explored. This is an elective for non-BT students. **(3)**; Prerequisites: BIO101; BIO102; CHE101; CHE102; BHS 320 or equivalent, or permission of Instructor.

BHS 755 Autonomic and Autocoid Pharmacology. The autonomic nervous system is pervasive anatomically and

physiologically. In recent decades the parallel between nervous system and immune system and their interaction in homeostatic and pathological conditions have become evident and are often targets of intervention. This course reviews the homeostatic physiology and interaction of these systems, as well as their role in disease processes such as innate immunity, hypersensitivities and autoimmune disease. The emphasis is placed on chemical mediators and their activity as elaborated by the two systems and as potential therapeutic targets. This is an elective for non-BT students. **(3)**; Prerequisites: Seniors or Second Professional Year PharmD students, or permission of Instructor.

BHS 765 Drug Teratogenesis. This course explores the basic processes of embryonic and fetal development as a basis for understanding the potential for pharmaceutical agents in inducing congenital defects. From the historical cases of thalidomide and hypervitaminosis A teratogenicity to the contemporary abuse of recreational drugs and the mandated FDA regulation pertaining to antibiotics, analgesics and anticoagulants, this course will elaborate on gestation period specific limitations in therapeutic usage. This is an elective for non-BT students. **(3)**; Prerequisites: Seniors or Second Professional Year PharmD students, or permission of Instructor.

BHS 775 Molecular Hematology and Oncology. This course prepares students for advanced careers hematology. The primary focus is on the cellular physiology of the hematopoietic, immune and hemostatic systems, but extends to related areas of developmental and cellular hematology, leukemia pathogenesis, hematopoietic development, cellular biology of iron metabolism, viral pathogenesis, cell growth signaling, genomic instability, and experimental therapeutics. The underlying molecular and cell signaling processes in development of hematologic malignancies, stem cell and bone marrow transplantation biology and leukemia management are some of the topics discussed. The role of research and evolving technology in diagnostics and therapy will be highlighted. **(3)**

BHS 785 Molecular Mechanisms of Antimicrobial Agents and Resistance. This course will explore the biochemical and molecular mechanisms underlying antimicrobial therapy and the emergence of drug resistance. The application of molecular techniques to elucidate the efficacy of therapeutics and in the identification of infectious agents, as well as the emergence of resistant strains will be discussed through case studies and contemporary literature. **(3)**

BHS 795 Immunopharmacology and Immunotoxicology. This course explores the molecular and cell biology of immune effectors, including inflammatory mediators and cytokines as pleiotropic agents with a fundamental role in regulation of innate and adaptive immunity, growth factors in tumor development and angiogenesis, signals in neuroimmune activity and degenerative processes. The rationale and mechanisms of therapeutic targeting of the immune system in allergies, autoimmunity and transplantation will be expounded, as will the targeting of the immune system by animate and chemical etiological factors to produce hyper- and hypo-activation. **(3)**

BHS 800 G Thesis Defense. This is a scholarly presentation of the result obtained during conduction of the student's research project. The student is expected to defend the project in front of their advisory board and invited attendees. A successful defense is required to earn the degree. This may be repeated only once in the event of an unsuccessful defense.

BHS 810 G Epidemiology and Statistics. This is an introductory course in the methods of epidemiology in health care. Epidemiology is the study of the distribution of diseases and the discovery of factors that determine the causes, spread and prevention of disease. This course will provide an introduction to the major analytical methods, calculations and research methods commonly used in epidemiology. The course also will provide many current applied examples of how epidemiology is being used to evaluate contemporary health issues, with special emphasis on the role of prescription drugs and pharmacy services in selected diseases. **3 Credits**

BHS 820 G Pharmacogenomics and Personalized Medicine. This course will provide a wide array of topics in the field pharmacogenomics and explore the growing importance of pharmacogenomics in the delivery and diagnosis pertinent to personalized medicine and therapeutic management. Students will be introduced to genomic concepts in genetic testing, future drug design, study interpretation, and clinical therapeutic decision making. The course will be divided into two sections. The first part of the course will examine the application of pharmacogenomics in medicine and drug design. In the second part of the course, the student will have the opportunity to apply pharmacogenomic concepts and decision making. This will be implemented via a patient case study developed by the student, or a written paper illustrating the influence of pharmacogenomics in medicine. **(2 credits)**

BIO 101 General Biology I: This course emphasizes critical thinking and scientific analysis while dealing with the molecular and cellular aspects of life. Major topics covered include biological molecules, cellular structure, cellular metabolism, Mendelian genetics, molecular genetics and classification of organisms. Laboratory exercises

concentrate on the scientific process and method while examining cell structure, tissue structure, molecular genetics and biotechnology. The themes of self-discovery and individual scientific investigation run throughout this course. This is the initial course in biological sciences for BS students. Course prerequisites requiring BIO 101 are also satisfied by BIO 111 and vice versa. **(4);** Lecture and Laboratory

BIO 102 General Biology II: This course continues to emphasize critical scientific thinking while focusing on the principles of evolution, the diversity of animal life and the complex interactions that occur between organisms and their environment. Major topics covered include evolutionary theory, a phylogenetic survey of animals, an introduction to the comparative physiology of the major vertebrate organ systems. The final area covered in the course is Ecology. Topics in this section include population ecology, community ecology, ecosystems, biomes and a discussion of the future challenges to the biosphere. Laboratory exercises continue to concentrate on scientific thinking and self-discovery. This is the second course in the biological sciences for BS Students. Course prerequisites requiring BIO 102 are also satisfied by BIO 121 and vice versa. **(4); Prerequisite:** BIO 101 or permission of instructor Lecture and Laboratory

BIO 111 General Biology I: This course focuses on the molecular and cellular aspects of life. Major topics covered include biological molecules, cellular structure, cellular metabolism, Mendelian genetics, molecular genetics and classification of organisms, viruses, bacteria, protista, fungi, nonvascular and vascular plants. Laboratory exercises concentrate on cell structure, tissue structure, molecular genetics and biotechnology. This is the initial course in biological sciences for Pharm.D. students. Course prerequisites requiring BIO 111 are also satisfied by BIO 101 and vice versa. **(4);** Lecture and Laboratory

BIO 121 General Biology II: This course focuses on the diversity of animal life and the complex interactions that occur within and between organisms with a strong emphasis on human systems. Major topics covered include population genetics, evolutionary theory, human evolution, a phylogenetic survey of animals, comparative anatomy of vertebrates, comparative physiology of the major vertebrate organ systems, cellular mechanisms of development, embryology, population and community ecology, and future challenges to the biosphere. Laboratory exercises concentrate on comparative anatomy and physiology with a strong emphasis on human biology. This is the second course in the biological sciences for Pharm.D. students. Course prerequisites requiring BIO 121 are also satisfied by BIO 102 and vice versa. **(4); Prerequisite:** BIO 111 or permission of instructor Lecture and Laboratory

BIO 156 Nutrition: This one semester course will teach the fundamental concepts of nutrition relevant to contemporary issues in health. It will present an interdisciplinary approach by integrating knowledge from the fields of anatomy, physiology, chemistry and microbiology. Food balancing and the selection of nutritionally adequate diets will be examined. The effects of food additives, processing, and the safety of our food supply will be explored. Nutritional changes throughout the lifecycle will also be discussed. Students will be asked to assess and evaluate research and literature in the field of nutrition. **(3)**

BIO 161 Community Health: This introductory course will provide the student with the knowledge and skills for healthy decision making in the areas of personal and community wellness and safety. Students will discuss critical and contemporary health issues including psychological health, nutrition, fitness and weight management, chemical abuse, human sexuality, parenting, aging, death and dying, the environment and the health care system. **(3)**

BIO 210 Microbiology (formerly BIO 312): The study of the structure, metabolism and replication of medically important bacteria, fungi, parasites and viruses, antimicrobial therapies, host-pathogen interaction and genetic engineering and biotechnology. The lab portion of the course will provide students with hands-on experience with sterile technique, staining, and microscopy and culminates with the identification of a mixed unknown culture of clinically relevant bacteria using biochemical tests and selective and differential media. **(4); Prerequisites:** BIO 101 or 111, BIO 102 or 121 Lecture and Laboratory

BIO 213 Anatomy and Physiology I: This lecture course will provide an introduction to the function, regulation and integration of organs and organ systems involved in human physiology. This course will begin with a review of the basic cell and tissue concepts covered in General Biology. Following that will be a detailed discussion of membrane potentials, the anatomy and physiology of the nervous system, major sensory organs, and central nervous system function. This knowledge will then be applied in a discussion of muscle structure and function. Finally the endocrine system and body coordination will be covered. **(3); Prerequisites:** BIO 101 or BIO 111, BIO 102 or BIO 121

BIO 214 Anatomy and Physiology I Laboratory: (1)
Corequisite: BIO 213; Laboratory

BIO 215 Anatomy and Physiology II: This lecture course continues an introduction to the function, regulation and integration of organs and organ systems involved in human physiology. This course will focus on the cardiovascular system, respiratory, renal and

gastrointestinal systems. Also dealt with will be aspects of metabolism and temperature regulation. The final section of the course will discuss host defense as a system and then review an integrated approach to the organ systems via the use of clinical case problems. **(3); Prerequisite:** BIO 213 or permission of instructor

BIO 216 Anatomy and Physiology II Laboratory: (1)
Corequisite: BIO 215; Laboratory

BIO 225 Genetics: An exploration of molecular genetics in the era of whole genome sequencing. Major topics covered include whole genome sequencing and phylogenetic comparison, molecular database mining, recombinant DNA and genetic engineering, genomics, classic Mendelian genetics, gene structure and regulation, genetic recombination, mutations and repair processes, the genetics of cancer, developmental genetics and population genetics. **(3); Prerequisite:** BIO 121

BIO 235 Cell Biology: Students will identify and describe the functions of all the organelles in the cell as they relate to the acquisition and metabolism of energy sources, regulation of the cell cycle, and communication between cells. Case studies, group projects, and the analysis of primary research in modern topics in cell biology such as botox, and stem cell research, and cancer are used to develop an in-depth understanding of cell biology and its role in biomedical science. **(3); Prerequisites:** BIO 101 or BIO 111, BIO 102 or BIO 121

BIO 236 Cell Biology Laboratory: In this laboratory course designed to complement the Cell Biology lecture, students will investigate and manipulate cellular reactions involved in energy acquisition, metabolism, and cellular transport. Students will work in groups, applying knowledge gained in lecture to solve problem sets related to the laboratory topics. Students will also participate in discussion of primary research presented in lecture. **(1); Corequisite:** BIO 235 Laboratory

BIO 327 Plant Biochemistry and Natural Products: This course is an introduction to the study of biomedically important molecules derived from plant metabolism usually known as natural products or herbals. The course will provide an overview of the various aspects of natural product research. An emphasis of the course will be the scientific investigation of natural products to evaluate their utility as therapeutic agents in human medicine. An important theme of the course is the integration of knowledge from prior courses in organic chemistry, biochemistry, and physiology. Topics covered include a review of basic plant biochemistry (including photosynthesis), primary plant metabolism, and secondary plant metabolism. Secondary plant metabolites include the polyketides; the phenylpropanoids, polyphenolics, lignins, tannins, flavanoids, isoprenoids, terpenes, and the alkaloids. The later part of the course will focus on the

biological effects of natural products especially in human medicine. **(3); Prerequisite:** CHE 255 or CHE 311 and BIO 215 or BIO 314 or permission of the instructor

BIO 335 Topics in Physiology and Pathophysiology: This course expands upon the concepts introduced in BIO 313/314. The course involves in-depth exploration of one or more of the core areas in pathophysiology. Topics covered may include cardiovascular pathophysiology, pulmonary pathophysiology, renal pathophysiology, hematology, cancer and inflammatory diseases. There is a strong emphasis on integration of knowledge developed in other courses in the curriculum such as medicinal chemistry, pharmacology and pharmacotherapy. **(3); Prerequisites:** BIO 215 or 314

BIO 375 Bacterial Pathogenesis: This course will explore the variety of mechanisms by which bacteria cause harm to humans. The course will initially focus on bacteria of concern as potential bioweapons. Subsequently, students will be required to draw parallels between the pathogenic mechanisms of possible bioweapons bacteria and other infectious bacteria gaining a comprehensive understanding of how any bacterium can be pathogenic. **(3); Prerequisite:** BIO 210

BIO 455 Toxicology: This course will provide students with a background in general toxicology and will focus specifically on the toxicology of drugs. The course introduction will include basic mechanisms of toxicity, cellular pathology, and a survey of environmental, industrial, food, and radiation toxicology. The primary focus of the course will be on drug-induced renal, hepatic, dermatological, neurological, cardiovascular, developmental, and reproductive toxicology. Carcinogenic activity of drugs will also be presented. Examples of specific drug toxicity using case studies will be utilized in the course. Regulatory toxicology will also be addressed, as will typical approaches to preclinical and clinical toxicity risk assessment. **(3); Prerequisites:** BIO 215 or BIO 314, CHE 102 or CHE 221

CHE 101/111 General Chemistry I: This course provides a solid introduction to the science of chemistry with an emphasis on those concepts necessary to understand the chemistry of biological systems. Topics covered include methods of measurement, thermodynamics, atomic and molecular structure, nomenclature, periodic properties of the elements, chemical bonding, molecular geometry, intermolecular forces, chemical reactions and solutions. In the lab component of this course students perform experiments that illustrate lecture topics, develop laboratory technique, and encourage problem solving skills. Pharm.D. students register for CHE 111, BS students register for CHE 101. Course prerequisites requiring CHE 111 are also satisfied by CHE 101 and vice versa. **(4); Lecture and Laboratory**

CHE 102/121 *General Chemistry II*: This course continues to provide a solid introduction to the science of chemistry by applying many of the topics covered in General Chemistry I to new areas. Special emphasis is again placed on those concepts necessary to understand the chemistry of biological systems. Topics covered include properties of solutions, chemical kinetics, chemical equilibrium, and acid-base equilibrium. In the lab component of this course students perform experiments that illustrate lecture topics, develop laboratory technique, and encourage problem solving skills. Pharm.D. students register for CHE 121, BS students register for CHE 102. Course prerequisites requiring CHE 121 are also satisfied by CHE 102 and vice versa. **(4); Prerequisite:** CHE 101 or 111 Lecture and Laboratory

CHE 201/211 *Organic Chemistry I*: This course provides a foundation for the study of organic reactions by examining the physical and chemical properties of organic molecules. Areas covered include acid-base chemistry, functional groups, resonance, isomerism, conformations, stereochemistry, charge-distribution and its impact on reaction mechanism, kinetics and thermodynamics, nomenclature, and spectroscopy. The laboratory provides a hands-on experience with methods and instrumentation used in the synthesis, purification and characterization of organic compounds including distillation, crystallization, extraction, chromatography, spectroscopy, kinetics, and polarimetry. The lab also has components in professional writing and ethics. Pharm.D. students register for CHE 211, BS students register for CHE 201. Course prerequisites requiring CHE 211 are also satisfied by CHE 201 and vice versa. **(4); Prerequisite:** CHE 102 or CHE 121; Lecture and Laboratory

CHE 202/221 *Organic Chemistry II*: This course focuses on the synthesis and reactivity of the major classes of organic compounds with emphasis on mechanistic rationalization and stereochemistry. The application of organic chemistry to the understanding of drug stability, drug reactivity and drug interactions is highlighted. The lab component of this course focuses on the hands-on application and development of experimental techniques designed to develop laboratory skills and promote understanding of the synthesis, identification and purification of organic compounds. Pharm.D. students register for CHE 221, BS students register for CHE 202. Course prerequisites requiring CHE 221 are also satisfied by CHE 202 and vice versa. **(4); Prerequisites:** CHE 201 or CHE 211 Lecture and Laboratory

CHE 255 *Survey of Biochemistry*: This course gives students a fundamental understanding of human biochemistry, with special emphasis on disease-related pathways and the biochemistry relevant to medical diagnostic procedures. It focuses on the major biochemical pathways, as well as their interrelation to one another. The laboratory portion

reinforces selected course topics and teaches the basic techniques of biochemical analysis. **(4); Prerequisite:** CHE 201 or 211 Lecture and Laboratory

CHE 318 *Bioorganic Chemistry*: This course provides instruction on introductory topics at the interface between chemistry and biology. The content will focus more specifically on the organic chemistry performed by enzymes in living systems. Enzyme chemistry will be related to how this knowledge has led, and continues to lead to, the discovery of important medicines. **(3); Prerequisites:** CHE 311, BIO 325 or permission of the instructor

CHE 323 *Environmental Chemistry and Toxicology*: This course examines several environmental topics including air and water pollution, sewage disposal, energy resources and radiation, food additives, flavor enhancers and sweeteners, insecticides, plastics and polymers in the environment and the chemistry of home care products. It also considers factors which bring about pollution of water and air and methods of controlling these pollutants. Principles of toxicology and carcinogenesis are considered, as well as the biotransformation of the pollutants aforementioned and other sources and their effect on body tissue. **(3); Prerequisite:** CHE 221

CHE 326 *Introduction to Chemical Analysis*: Techniques associated with the analysis of drugs include those necessary to isolate, characterize and quantify both primary components and impurities. This course will provide an introduction to basic analytical concepts (literature, basic statistical considerations, standards, calibration curves, etc.), wet chemical techniques (extraction, titrations, TLC) and instrumental methods (GC, HPLC, NMR, IR, MS, potentiometric). Laboratory experiments are designed to reinforce the theoretical concepts discussed in lecture and provide an introduction to professional laboratory habits. **(3); Prerequisite:** CHE 211

CHE 345 *Physical Chemistry I*: This course covers fundamental concepts of physical chemistry including thermodynamics (with applications to chemical and phase equilibria and electrochemistry), and reaction kinetics and mechanisms. Emphasis is on solving qualitative and quantitative problems using a variety of mathematical methods. The concepts are presented in the context of their importance for understanding of biological systems. Examples include qualitative and quantitative applications of these topics of physical chemistry to specific biological and biomedical problems. **(3); Prerequisite:** PHY 222, MAT 211, CHE 121

CHE 355 *Organic Synthesis*: This laboratory-based course explores advanced topics in organic synthesis with emphasis on carbon-carbon bond formation, retrosynthetic analysis of complex molecular structures,

and chemo-, regio-, and stereoselectivity in organic chemical reactions. Students will apply course concepts in the laboratory by conducting multi-step synthetic sequences that include advanced techniques such as inert atmosphere conditions, analytical and preparative chromatography for purification and analysis and spectroscopic characterization of synthesized products. **(3); Prerequisite:** CHE 221

CHE 415 Medicinal Chemistry: This course explores the fundamental principles that define the relationship between the chemical structure and biological action of drug molecules. A major focus of the course is the application of these chemical principles to pharmacokinetics, with special emphasis on drug metabolism, and the molecular mechanisms of drug activity, drug resistance and drug synergism. Strategies for drug development, drug and pro-drug design, and pharmacologic evaluation utilizing the concepts of qualitative and quantitative structure-activity relationships, biological screening assays, combinatorial chemistry, and computer-aided modeling are discussed. **(3); Corequisites:** CHE 311, BIO 314

CHE 423 Methods in Spectroscopy: This course covers the theoretical bases of IR, NMR and UV/visible spectroscopies and mass spectrometry with applications to the elucidation of the structure and function of organic molecules. Included are examples of spectroscopic analyses of stereochemistry, conformations and kinetics with emphasis on biomedical applications such as spectroscopic investigations of drug transport and metabolism. An overview of chromatographic methods and the coupling of these methods to spectroscopic analyses will also be discussed. **(3); Prerequisite:** CHE 202 or CHE 221

CHE 523 G Methods in Spectroscopy (formerly CHE 623): This course covers the theoretical bases of IR, NMR and UV/visible spectroscopies and mass spectrometry with applications to the elucidation of the structure and function of organic molecules. Included are examples of spectroscopic analyses of stereochemistry, conformations and kinetics with emphasis on biomedical applications such as spectroscopic investigations of drug transport and metabolism. An overview of chromatographic methods and the coupling of these methods to spectroscopic analyses will also be discussed. **(3)**

CLK 800. Introductory Pharmacy Practice Experience (IPPE) – Community Pharmacy. This experientially-based, 3 credit, required course will expose students to the basic day-to-day operations of a community pharmacy. Specific assignments have been designed to provide students with the opportunity to apply the knowledge and skills gained through classroom and laboratory instruction into an actual practice setting. Other activities involve students gaining new knowledge and skills essential to community

pharmacy practice. Students will participate in and demonstrate an understanding of the “flow” of processing and dispensing a prescription medication order, evaluate medication orders for accuracy and completeness and describe the medication distribution system employed by the pharmacy. This course will prepare the student for their advanced pharmacy practice experiences in the fourth professional year and is a prerequisite for CLK811+. **(3); Prerequisites:** New York State intern permit, which necessitates satisfactory completion of the first professional year curriculum, or equivalent for the State, completing rotation in, and CPR certification.

CLK 802. Introductory Pharmacy Practice Experience (IPPE) – Institutional. This experientially-based, 3 credits, required course will expose students to the basic day-to-day operations of an institutional pharmacy. Each student will have the opportunity to apply knowledge gained through didactic learning and lab by placement in an actual practice setting. Specific assignments have been designed which require the application of classroom knowledge and skills to be further developed during these on-site training experiences. Students will demonstrate an understanding of the proper procedure for preparation of intravenous products using aseptic technique, describe the “flow” of processing an order, evaluate institutional orders for accuracy and completeness and describe the medication distribution system employed by the pharmacy. This course will prepare the student for their Institutional Advanced Pharmacy Practice Experience in the fourth professional year. **(3); Prerequisites:** New York State intern permit or equivalent for the State in which rotation will be completed.

CLK 803. Introductory Pharmacy Practice Experience (IPPE) – Patient-Assessment. This experientially-based, 1 credit, required course will expose students to the basic day-to-day operations of a patient care setting. Each student will have the opportunity to apply knowledge gained through didactic learning and lab by being placed in an actual practice setting. Specific assignments have been designed which require the application of classroom knowledge and skills to be further developed during these on-site training experiences. Students will gather and organize information from patient medical charts, conduct patient interviews to obtain an accurate medication history, identify medication related problems, present a patient case in a structured format (ex. SOAP note) and prepare responses to drug information inquiries. This course will prepare the student for their Advanced Pharmacy Practice Experiences in the fourth professional year. **(1); Prerequisites:** New York State intern permit or equivalent for the State in which rotation will be completed.

CLK 811+. Advanced Pharmacy Practice Experiences (APPEs). APPEs are “hands-on” experiences designed to build on the academic base obtained in the didactic portions and the IPPEs in the Pharm.D. program. The

purpose of the APPEs is to provide the student with a broad exposure to various pharmacy practice environments in order for the student to develop skills in making independent judgments and integrating fundamental knowledge into clinical applications. APPEs span a 12-month period (May-May) and are subdivided into modules; each student is required to complete six APPE modules (36 academic credits). APPEs are scheduled by the College and typically require the student to be at the practice site at least eight hours daily. Each student must complete required and elective modules as follows: Required APPEs: community pharmacy (6 weeks); ambulatory care (6 weeks); institutional pharmacy (6 weeks) and inpatient (6 weeks). Inpatient and ambulatory care rotations are direct patient care rotations in settings including but not limited to anticoagulation; diabetes care/endocrinology; family practice; home care; internal medicine; nephrology; nutrition; primary care; AIDS; cardiology; critical care; geriatrics; hematology/oncology; infectious diseases; pediatrics and psychiatry. Two elective APPEs, of 6 weeks each, are required and may include direct patient care APPEs (community, ambulatory care or inpatient setting) or non-patient care APPEs such as: managed care; antimicrobial management; clinical toxicology; consultant pharmacy; drug programs management; governmental affairs/ regulatory; health information management; home infusion pharmacotherapy; long-term care; nuclear pharmacy, pharmaceutical industry; pharmacoepidemiology; pharmacy administration; pharmacy association management; pharmacy database management; pharmacy education and research. **Prerequisites:** Must have successfully completed all required didactic coursework and all IPPEs. Also, successful completion of Top 280 exam and CPR certification.

CLK 812+. *Ambulatory Care Advanced Pharmacy Practice Experience.* This required, 6-week advanced practice experience provides students with practical experience in the setting of ambulatory care. The sites available are varied and include, but are not limited to, clinics/offices in the field of diabetes; adult /pediatric medicine; oncology; home health care; neurology; nephrology; nutrition; anticoagulation and pain management. This experience introduces the student to the practical application of pharmaceutical care, enhances student abilities to identify and resolve medication related problems, refines medication information skills and provides an opportunity for the student to participate in multidisciplinary patient care in an ambulatory care setting. This experience will be offered in the P4 year. The student must have completed all required courses up to the P4 year. **(6)**

CLK 928. *Public Health Introductory Pharmacy Practice Experience.* This required, 40 hour introductory practice experience provides the students with practical experience in promoting health improvement, wellness and disease prevention. The experience sites available are varied and

include, but are not limited to, the Capital District YMCA; American Cancer Society; New York State Public Health Departments (located in various counties of New York State); American Diabetes Association; senior care centers; assisted living facilities; Brain Injury Association; Alzheimer's Association and health care consortiums. **(1)**

CLK 930/931 *Institutional and Inpatient Advanced Pharmacy Practice Experiences.* This required, 6-week each, Advanced Pharmacy Practice Experiences provide students with practical experience in the institutional care setting. They include all aspects of institutional practice and acute care medicine including medication distribution, patient assessment and monitoring, pharmacotherapy assessment, medication control and procurement, medication use systems, drug information services and administrative functions. **(6 each)**

CLS 305. *Clinical Hematology.* This course will address the evaluation of blood cells and body fluids in the clinical hematology laboratory. The lecture and laboratory will highlight physiology, pathophysiology and laboratory testing of blood and bone marrow cells, evaluation of hemostasis and hemostatic disorders and the laboratory evaluation of formed elements found in other body fluids. This is an elective for non-BT students. **(3)**

CLS 325. *Clinical Microbiology.* This course will focus on the study of aerobic and anaerobic bacteria. The diagnostic techniques involved in identifying the organisms, the significance of different organisms in various clinical specimens, the presentation of microbial disease states and the application of principles of infection control will be presented. Students will also learn key aspects of mycological, viral and protozoan infections. Students will analyze and record laboratory data, comply with all safety procedures and recognize the key role the diagnostic microbiology laboratory plays in determining drug sensitivity, drug resistance and sources of infection. Students will become proficient in traditional microbiology, as well as contemporary immune- and molecular-based identification technology. **(4)**

CLS 334. *Clinical Immunology and Immunohematology.* This course covers basic immunologic theory and concepts in relation to the principles and performance of procedures used in the laboratory diagnosis of infectious and immunologic disease. Specific topics include antigen-antibody reactions, complement and complement fixation, immunoassays, immunofluorescence, microbial serology and autoimmune diseases. Immunologic principles will be applied to the study of immunohematology including blood groups, transfusion therapy, hemolytic anemias and related pathologic mechanisms. Emphasis is placed on problem solving experience with respect to both theoretical and practical applications. **(3)**

CLS 344. *Clinical Chemistry.* This combined lecture/laboratory course focuses on basic concepts of laboratory instrumentation, troubleshooting techniques and the operation, evaluation and selection of instruments. Lectures emphasize chemical measurements of physiologic indicators of normal and abnormal human metabolism and address the elements of clinical chemistry and its application to diagnosis and treatment of patients. The significance of lipids, carbohydrates, proteins, enzymatic measurements, acid-base balance as they apply to diagnoses of cardiovascular, pulmonary, renal and metabolic diseases is emphasized through hands-on measurement and correlation with pathophysiology. **(3)**

CLS 401; CLS 402. *Clinical Practicum I and II.* Students will participate in a number of experiential exercises in several affiliated hospital and laboratory sites. Rotations will include Clinical Microbiology, Clinical Chemistry, Immunohematology, Hematology and Coagulation, Immunology/Serology and Molecular Diagnostic testing. The clinical practicum experience will include specimen tracking, performance of routine analyses, demonstration of specialty testing, observation of automated instrumentation and management processes, including quality control and quality assurance activities. Rotations are eight hours per day, three days per week. It is expected that students will conduct themselves in a professional manner at all times. **(9 each)**

COM 101 *Academic Reading and Writing:* This course introduces students to critical writing and reading in academic contexts and offers them the opportunity to develop essential skills in comprehending, analyzing and evaluating college-level texts; effectively addressing writing assignments; inventing, drafting and revising; and seeking, providing and responding to constructive feedback. Through multiple writing activities and individualized coaching, students are presented with and practice the fundamentals of academic scientific communication such as synthesizing multiple sources, sustaining a coherent argument and revising for clarity of style. Special attention is paid to conventions of standard written English. **(3)**

COM 115 *Principles of Communication:* This course is aimed primarily toward introducing students to academic literacy practices, including reading, writing, researching and using sources, speaking, collaborating with peers and using visuals. Students will establish a solid communication skill set to serve as a foundation for the rest of their academic and professional career. In addition, students also will engage in activities to understand both the basic principles and processes of communication, as well as the tools that make communication possible. **(3)**

COM 120 *Introduction to Public Speaking (formerly LAS 241):* The purpose of this course is to help students become more confident and more effective oral

communicators. Students learn the theory and practice of oral communication: psychology, body language, advance preparations and polished delivery. Included will be topics on interviewing, speaking before a group, the logistics of committee work and using audiovisual equipment. **(3)**

COM 150 *Introduction to Journalism (formerly LAS 144):* This course is designed to introduce students to the basic concepts of journalism by exploring and evaluating issues and events occurring during the college years. Students will write at least four articles for Mortar and Pestle each semester. This course may be taken three times, giving a sense of continuity to the newspaper and enabling students to earn a total of three liberal arts credits. **(1)**

COM 171 *American Sign Language I:* Level 1 is an introductory level course for students with little or no prior experience in Sign Language. Expressive and receptive sign skills will be addressed as well as the manual alphabet for fingerspelling, basic grammatical structures, and how to develop vocabulary through sign production. The students will also learn about various forms of sign language and deaf culture. Class time will be devoted in developing basic conversations and the skills will be practiced in whole group discussions as well as small group exercises and discussions. Signs skills will also be enhanced outside the classroom through grammar and comprehensive exercises. **(3)**

COM 172 *American Sign Language II:* Expressive and receptive sign skills will be addressed as well as the manual alphabet for finger spelling, basic grammatical structures, and how to develop vocabulary through sign production. The students will also learn about various forms of sign language and deaf culture. Class time will be devoted in developing basic conversations and the skills will be practiced in whole group discussions as well as small group exercises and discussions. Signs skills will also be enhanced outside the classroom through grammar and comprehensive exercises. **(3) Prerequisite:** COM 171

COM 211 *Spanish for Health Careers I:* The Spanish for Health Careers I and II sequence will provide students with specific vocabulary, grammar and cultural competencies that will be directly applicable to interaction with Spanish-speaking clients within a health care context. Particular emphasis will be placed upon the building of speaking/listening communication skills. Students will primarily communicate in the present tense and will be introduced to expression in the past tense. As the Spanish for Health Careers I Course is an introductory level language course, previous knowledge of Spanish will be helpful but not necessary. **(3)**

COM 212 *Spanish for Health Careers II:* The Spanish for Health Careers II is the second course in the sequence that provides students with specific vocabulary, grammar and cultural competencies that will be directly applicable to

interaction with Spanish-speaking clients within a health care context. **(3); Prerequisite:** COM 211 or permission of instructor

COM 230 *Overcoming Communication Hurdles in Health Care (formerly LAS 251)*: This course addresses the development of students' reading, writing, speaking and listening abilities. Through a mix of mini-lectures, workshops and active learning activities, students are presented information fundamental to understanding communication as a critical element in the delivery of health care. Through case studies, individual and group assignments, students will apply the communication strategies presented in class to situations of increasing rhetorical complexity and personal responsibility. **(3); Prerequisite:** COM 115

COM 242 *Interpersonal Communication (formerly LAS 242)*: This is an experiential course designed to introduce students to foundational theories in interpersonal communication. The course is divided into three modules. The first module will focus upon the self in communication: how does an individual present him or her self in communication situations. The second module focuses on the mechanics of communication: what people are doing when they are in the process of creating meaning. The third centers on human relationships: how relationships are constructed and maintained, and how these can deteriorate. **(3); Prerequisite:** COM 115

COM 251 *Communication and Conflict*: This course offers a broad overview of the study of conflict from a communication perspective. It introduces students to current theoretical and applied issues in the study of conflict management using social science theories to help explain the process of interacting with others. Specifically, the course examines the nature, causes, and techniques for managing conflict across a wide variety of situations including societal clashes, psychological turmoil, group decision-making, intimate relationships, and organizational interaction. While each of these situations differs in important ways, there are commonalities in how conflict functions across them. We will look at those commonalities to understand the role of communication in conflict. The assignments and class activities focus upon the theories, models, principles, and concepts of conflict and their application to a variety of relationships. **(3); Prerequisites:** COM 115

COM 339 *Professional and Technical Writing*: This course addresses the development of students' writing abilities through a mix of mini-lectures, workshops and active learning activities. This course is hybrid meaning 1/2 of the classes are face-to-face and 1/2 are online. Students are presented information fundamental to understanding written communication as a critical element in the delivery of health care. Through case studies, individual and group assignments, students will apply the rhetorical strategies

presented in class to situations ranging from the general to discipline/ profession specific. **(3) Prerequisite:** COM 115

CYT 500 G *Introduction to Cytopathology*. This is a survey of the cytotechnology profession, its scope of practice and issues of responsibility and ethics. Future trends in the profession and flexibility in adoption of new and novel technologies alongside traditional diagnostic tools will be discussed. **(1)**

CYT 510 G *Cytopathology of Female Genital Tract (FGT) Lecture and laboratory*. This course will present the basic principles of Cytopathology applied to the cellular samples obtained from the female reproductive system. Topics covered are the gross and microscopic anatomy, physiology and pathology of the cervix. This course will establish a foundation for identifying and understanding the basic epithelial cell types. Benign, reactive, and infectious conditions will be discussed. Infectious organisms and the cellular changes they produce will be identified. Pre-malignant and malignant conditions will be discussed and identified on cytologic specimens obtained primarily from the Pap Test. In the laboratory students will learn in an experiential setting by examining both pre-diagnosed and unknown cases from the FGT that demonstrate a wide variety of benign to malignant conditions. Infectious organisms and the cellular changes they produce will be identified. Cellular changes induced by therapies and environmental entities will be examined and criteria to identify these will be discussed. **(4)**

CYT 520 *Exfoliative Non-Gynecologic Cytopathology I Lecture and laboratory*. This course will present the basic principles of cytopathology applied to the cellular samples obtained from a variety of body sites through brushings washings and scrapings. Gross and microscopic anatomy, physiology and pathology of these sites will be explored. Specimens from the Respiratory Tract and Gastro-intestinal Tract will be examined. This course will expand on the foundation for identifying and understanding the basic epithelial cell types begun in Introduction to Cytology and Cytology of the FGT. Benign, reactive and infectious conditions will be discussed. Infectious organisms and the cellular changes they produce will be identified. Atypical and malignant conditions and their cellular appearance on a variety of cytologic specimens will be explored. Cellular changes induced by therapies and environmental entities will be discussed and their role in rendering a final diagnosis will be recognized. In the laboratory students will learn in an experiential setting by examining both pre-diagnosed and unknown cases from these sites that demonstrate a wide variety of benign to malignant conditions. Infectious organisms and the cellular changes they produce will be identified. Cellular changes induced by therapies and environmental entities will be examined and criteria to identify these will be discussed. **(2)**

CYT 530 G *Exfoliative Non-Gynecologic Cytopathology II Lecture and Laboratory*. This course will present the basic principles of cytopathology applied to the cellular samples obtained from a variety of body sites through brushings washings and scrapings. Gross and microscopic anatomy, physiology and pathology of these sites will be explored. Specimens from the Genital Urinary System, Body Cavity Fluids and Cerebral Spinal Fluid will be examined. Benign, reactive and infectious conditions will be discussed. Infectious organisms and the cellular changes they produce will be identified. Atypical and malignant conditions and their cellular appearance on a variety of cytologic specimens will be explored. Cellular changes induced by therapies and environmental entities will be discussed and their role in rendering a final diagnosis will be recognized. In the laboratory students will learn in an experiential setting by examining both pre-diagnosed and unknown cases from these sites that demonstrate a wide variety of benign to malignant conditions. Infectious organisms and the cellular changes they produce will be identified. Cellular changes induced by therapies and environmental entities will be examined and criteria to identify these will be discussed. **(2)**

CYT 540 G; CYT 550 G *Cytopreparatory Techniques I and II*. This course will develop the skills necessary to prepare a wide variety of specimens and teaches how to select and apply the appropriate staining technique for each. Students will learn to develop a Cytology Preparation Manual and how to comply with all State, OSHA and Federal regulations in a working laboratory. Emphasis will be placed on safe, efficient and effective handling techniques. Students will make a collection of representative slides from a variety of body sites using expired specimens donated from clinical affiliates. **(1 each)**

CYT 560 G *Fine Needle Aspiration Cytology I- Lecture and Laboratory*. This course will present the basic principles of cytopathology applied to the cellular samples obtained through fine needle aspiration (FNA) from a variety of body sites where lesions can be identified by Radiological techniques. Gross and microscopic anatomy, physiology and pathology of these sites will be explored. Specimens from the Breast, Thyroid Glands, Salivary Glands and Lymph Nodes will be examined. Benign, reactive and infectious conditions will be discussed. Infectious organisms and the cellular changes they produce will be identified. Atypical and malignant conditions and their cellular appearance will be explored. Cellular changes induced by therapies and environmental entities will be discussed and their role in rendering a final diagnosis will be recognized. In the laboratory students will learn in an experiential setting by examining both pre-diagnosed and unknown cases from these sites that demonstrate a wide variety of benign to malignant conditions. Infectious organisms and the cellular changes they produce will be identified. Cellular changes induced by therapies and

environmental entities will be examined and criteria to identify these will be discussed. **(3)**

CYT 570 G *Fine Needle Aspiration Cytology II- Lecture and laboratory*. This course will present the basic principles of cytopathology applied to the cellular samples obtained through fine needle aspiration (FNA) from a variety of body sites where lesions can be identified by Radiological techniques. Gross and microscopic anatomy, physiology and pathology of these sites will be explored. Specimens from the Liver, Pancreas, Ovary, Kidney Adrenal Glands and Central Nervous System will be examined. The course will also include FNA of unusual lesions like: mediastinal lesions, bone and soft tissue lesions and pediatric tumors. Benign, reactive and infectious conditions will be discussed. Infectious organisms and the cellular changes they produce will be identified. Atypical and malignant conditions and their cellular appearance will be explored. Cellular changes induced by therapies and environmental entities will be discussed and their role in rendering a final diagnosis will be recognized. In the laboratory students will learn in an experiential setting by examining both pre-diagnosed and unknown cases from these sites that demonstrate a wide variety of benign to malignant conditions. Infectious organisms and the cellular changes they produce will be identified. Cellular changes induced by therapies and environmental entities will be examined and criteria to identify these will be discussed. **(3)**

CYT 580 *Liquid Based Cytopathology of Female Genital Tract (FGT)*. This course develops the skills necessary to successfully screen thin layer preparations obtained from specimens of gynecologic (GYN) origin. Federal regulations require specific training in diagnosing these specimens and students will follow a documented course of instruction and practice. No student will be certified to screen these cases without passing a test in these preparations with a grade of at least 90% as mandated by the FDA. This course expands on abilities developed in CYT510. **(1)**

CYT 590 G *Clinical Practicum I*. This course will consist of two clinical rotations, the first one lasting seven weeks and the second one for a week at two different clinical affiliate laboratories. Students will rotate one week in a laboratory that deals with adjuvant methodologies such as molecular diagnostics, flow Cytometry or proteomics. Students will “shadow” a teaching cytotechnologist through their daily routine and participate in all laboratory activities as permitted. Students are expected to pre-screen cases that will later be re-screened by the teaching cytotechnologist, participate in preparation and staining of specimens, and any FNA, Tumor Board, Tissue Correlation and Patient Follow-up activities that their teaching cytotechnologist deems appropriate. **(6)**

CYT 600 G *Clinical Practicum II*. This course will consist of two clinical rotations, the first one lasting seven weeks and the second one for a week at two different clinical affiliate

laboratories. Students will rotate one week in a laboratory that deals with adjuvant methodologies such as molecular diagnostics, flow Cytometry or proteomics. Students will “shadow” a teaching cytotechnologist through their daily routine and participate in all laboratory activities as permitted. Students are expected to pre-screen cases that will later be re-screened by the teaching cytotechnologist, participate in preparation and staining of specimens, and any FNA, Tumor Board, Tissue Correlation and Patient Follow-up activities that their teaching cytotechnologist deems appropriate. **(6)**

ECN 101 *Introduction to Economics:* The course covers basic economic principles applied to current social issues and problems. Topics covered will typically include inflation, unemployment, wage and price controls, welfare, social security, national debt, health programs, food prices, pollution, crime, mass transit, revenue sharing, multinationals, population, and energy. This course will prepare students to master fundamental economic concepts, applying tools (graphs, statistics, equations) to the understanding of operations and institutions of economic systems. Students will study the basic economic principles of micro and macroeconomics, international economics, comparative economics systems, measurement and methods. **(3)**

ECN 321. *Economic Quantitative Analysis I.* Economic quantitative analysis is a broad subject area, with topics ranging from basic statistics to advanced regression techniques. This course takes a mathematical modeling approach. The format is designed to provide a foundation in linear programming and probabilistic techniques. A wide range of decisionmaking tools will be developed and used. This is the first in a two-course sequence. **(3); Prerequisites:** MAT145, and 111

ECN 335 *Ecological Economics.* Ecology is the natural science that deals with relationships among all organisms and their environments. Ecological studies traditionally have focused on interpreting the non-human world and have provided little explicit application to human society. Economics is the social science that deals with the production, distribution and consumption of human goods and services. Traditional or “neoclassical” economics often has disregarded ecological principles, thus leading to ecologically untenable policy implications. Ecological economics fuses ecology and economics to assess the capabilities of natural ecosystems to support economic systems. It interprets economic systems as an evolutionary function of the physical and biological environment. Conversely, ecological economics assesses the effects of human economies on the natural world. Ecological economics rests upon a foundation of ecological principles, producing policy implications that are often quite distinct from those of neoclassical economics. This is a transdisciplinary course, incorporating relevant principles and practices from political science, psychology and

physics in addition to ecology and economics. Students are not required to construct mathematical models. **(3)**

ECN 345 *Economic Development.* The focus is on development problems and policies at domestic or country and global levels. The specific topics covered at country level include poverty and inequality, population and migration, human capital, agriculture and the environment, as well as the role of political institutions in economic development. At the global level, the course will cover topics such as trade theory and policy, foreign aid and investment and debt issues. The course will conclude by discussing critical issues for the 21st century such as health, globalization and the environment. **(3)**

ECN 421 *Economic Quantitative Analysis II.* This course is a continuation of Economic Quantitative Analysis I and takes a mathematical modeling approach. The format is designed to provide a foundation in linear algebra and advanced mathematics, such as differential equations. A wide range of decision-making tools will be developed and used. **(3); Prerequisite:** ECN 321

EDU 301 *Teaching/Learning in Higher Education.* Designed as a hybrid course (mostly online, with a few weeks face-to-face) to develop knowledge and skills in various aspects of teaching and learning. Students will analyze and expose the teaching process. In addition, students will participate in didactic teaching moments and shadow a professor/class in session. Theories and styles of learning; personality factors related to learning; and implications of effective intellectual, emotional and social functioning included within the context of structuring education for the adult learner will be studied. The goal of this course is to provide students with the theory and practice behind academia, plus expose pharmacy education and the professorate as a profession. **(3)**

ETH 115 *Ethics of Belief (formerly LAS 108):* This course will attempt to investigate the meaning and implications of the following question: What is the moral obligation of people and institutions who claim to know something that is not obviously true, such as the claims of artists, religious believers, politicians, economists, philosophers, scientists and ordinary people on the street? This question forces people who claim to know things to take a special responsibility for their opinions and beliefs. There is another question this course will consider: What is the moral obligation of people and institutions that know or suspect that knowledge claims of others are not true, but false and potentially dangerous? A variety of short readings from a diverse spectrum of knowledge claims and beliefs will be examined closely. Any answers to the two basic questions addressed by the course will come about through the mutual efforts of the instructor and students. **(3)**

ETH 310 *Bioethics (formerly LAS 225):* In this course students consider the impact of modern medical

technology, including drugs, on matters of ethics and policy. Topics include genetic counseling, do-not-resuscitate orders, informed consent in treatment and in research, the right to and the right to refuse treatment, and the allocation of scarce medical resources. The course uses the case study method, with films or videotaped presentations and discussions with expert guests. **(3); Prerequisite:** Junior Level Standing

ETH 315 *Eugenics and the Ethics of Artificial Selection (formerly LAS 223)*: Since the late 1800s, eugenic theory and practice have been viewed as both critical to the survival of a viable human species and as an evil menace expressive of the worst form of prejudice. This course briefly will review the history of eugenics and then examine the most prominent approaches to artificial selection (as opposed to Darwinian natural selection) being developed, executed and hotly debated at the beginning of the 21st century. This examination of contemporary eugenic theory and practice will include an in-depth look at the moral arguments for and against eugenic approaches to artificial selection. As a prelude to the ethical analysis of eugenic thinking and practice, a brief introduction to the history of moral philosophy will be conducted. The focus of this course will be on the moral reasoning (for and against) associated with eugenics, and the development of a tentative moral position on eugenic theorizing and practices. **(3); Prerequisite:** Junior Level Standing

ETH 510 *Health Care and Human Values (formerly LAS 611)*: This capstone experience involves readings from literature and current publications that deal with ethical issues in health care and medical research. This course exposes the students to theories of ethical decision making and to works that treat such topics as the responsibilities of the scientist, the use of drugs in our society, cultural communication gaps in health care, health care in the developing world, and euthanasia; it provides the students with the opportunity to explore the ethical dimensions of these topics in written and discussion form. **(3); Prerequisite:** Fifth Year Standing in the PharmD program

GEN 141 *Introduction to Law*: This course will introduce students to various aspects of the legal system in the United States. Students will understand the history that formed the foundation for American law and the administration of justice, including a review of Constitutional Law and the evolution of the Supreme Court's review of the Amendments over time. Legislative, Judicial, and Administrative processes will be reviewed. Students will distinguish between civil and criminal cases, review landmark decisions of the U.S. Supreme Court, and study various areas of law in detail including Criminal Law & Procedure, as well as various types of Civil Laws & Procedure, including Family Law, Matrimonial Law and Torts. **(3)**

GEN 245 *Budo and Sado (formerly LAS 245)*: Japanese Martial Arts and the Way of Tea. This course will explore the relationship between Budo (the Japanese martial arts) and Sado (the Way of Tea). Sado is also known as Cha-no-yu or the Tea Ceremony in English. The commonalities and the unique aspects of these disciplines will be examined along with their relevance to modern life. The historical context and cultural milieu of these arts will be considered, particularly with respect to their significance in personal growth and development. Zen Buddhism is a significant part of the foundation of both Budo and Sado and a portion of the course will be allocated to reviewing the tenets of Zen and its training methods. Most importantly, students will undergo significant experiential practice in the physical aspects of various Budo and in the Japanese Tea ceremony (the preparation and drinking of ma-cha or powdered green tea). Approximately half of each week's class time will be allocated to discussion of assigned readings and articles and the other half will be experiential. **(3); Prerequisite:** HUM 201

HHS 201 *Health and Human Sciences Seminar I: (2)*: **Prerequisite:** Sophomore level standing in the Health and Human Sciences Program.

HHS 301 *Health and Human Sciences Seminar II: (2)*: **Prerequisite:** Junior level standing in the Health and Human Sciences Program.

HHS 401 *Health and Human Sciences Seminar III: (2)*: **Prerequisite:** Senior level standing in the Health and Human Sciences Program.

HIS 110 *American Government*: This introductory course is designed to familiarize students with the concepts, principles, procedures, institutions and conflicts essential to American government and politics. The course is divided into four parts: The first part focuses on the basic features of our constitutional structure: the separation of powers, federalism, checks and balances, and limited government. The second part concentrates on the political inputs: public opinion, political parties, and interest groups. The third deals with the three branches of government: Congress, the President, and the Supreme Court. The fourth part focuses on the policy outputs of government, both domestic and foreign. The course will place an emphasis on health policy. **(3)**

HIS 115 *American Frontier (formerly LAS 278)*: This course analyzes the concept of the frontier in French, Spanish and English colonial histories and how those merged into the United States frontier. Students will explore the mythological icon of the frontier in American history as well as specific political, environmental, and gender elements of the European, Euro-American and Native American frontiers. Last, students will explore water rights, urbanization, the Dustbowl and other elements of the

American West, the region most associated with "the Frontier." **(3)**

HIS 120 *Native Americans Through Their Own Eyes (formerly LAS 275)*: This course addresses Native American history and literature from the perspective of native writers and historians. What are the major issues from their vantage? Has the native concept of "history" and "literature" changed since the advent of literacy? Can only natives write about their communities, and, if so, how does a member of one tribe gain consent to write about another tribe with a different culture? Lastly, what do these writers and historians see as the future of their people? **(3)**

HIS 125 *Southwestern American Indian History (formerly LAS 239)*: In this course, students study various elements of Southwestern Indian culture and history from prehistoric times to the modern era. This is a history rather than an anthropology class, but various elements of Native Southwestern culture and society will be incorporated within the historical narrative. **(3)**

HIS 130 *The Indian in American History (formerly LAS 913)*: This course examines how Native American peoples came to the continent (examined through their own myths and modern anthropological interpretations) and the cultures that developed before 1492. The bulk of the course examines chronological historical interaction between Europeans and natives after 1492 and the way this affected the cultures of both groups. **(3)**

HIS 140 *Early American History*: The course examines the history of areas that came to compose the United States by 1840, using the East Coast, Southwest and Gulf Coast as areas of emphasis. The majority of the course will be devoted to the formation of the "United States of America" along the Atlantic coast and the westward progression of that country across the North American continent. As a class we will examine the major cultures, demographics, military conflicts, and political and religious structures which shaped the growth of the US before 1840. This course stresses historical content but, just as important, hones critical thinking skills concerning how we as Americans interpret history. **(3)**

HIS 210 *Hitler's Empire (formerly LAS 134)*: This course examines Germany, Europe and the world as they were shaped or influenced by Adolf Hitler and the National Socialist movement. Among the issues examined: the historical and cultural factors that account for the rise of National Socialism; the extent to which Hitler's personality shaped National Socialist policy and practice; Nazi racial policies and the Holocaust; the economy of and everyday life in the Third Reich; the foreign policy of National Socialism; the role of the S.S. in the Nazi state and the long-term impact of the National Socialist experience on German and world history. **(3)** **Prerequisite:** HUM 102

HIS 215 *Vietnam War (formerly LAS 891)*: This course examines America's longest war: its background, course and conclusion; the war on the battlefield and the war at home; and the costs and consequences for both the United States and Vietnam. The course will examine fiction, journalism, historical analysis, political theory, film and popular music. **(3)** **Prerequisite:** HUM 102

HIS 220 *Era of the Russian Revolution (formerly LAS 330)*: This course examines the rise, dominance and decline of Soviet Communism in the 20th century. Students study the economic, political and social conditions that led to revolution; the ideologies that spurred men and women to action; the personalities involved; the nature of the Communist state that resulted; the reaction of the rest of the world; the revolutions of the 1980s and 1990s and the future of Communism. The focus is on careful analysis and discussion of literature, films, music and art – vehicles for understanding communism and Russian life and culture. **(3)** **Prerequisite:** HUM 102

HIS 225 *The American Civil War (formerly LAS 265)*: This course offers an introduction to the bloodiest war in American history: the Civil War. The course examines the differences that led to the conflict; the social, political and economic characteristics of the North and South; the nature of the war; emancipation and its consequences; conditions on the home front; the Reconstruction era after the war; and how American memory of the war over the past 140 years has helped to define and shape the nation that the United States is today. **(3)** **Prerequisite:** HUM 102

HIS 310 *International Relations (formerly LAS 127)*: This course examines the changing nature of power in world politics since the end of World War II. Topics include the causes of international conflict, the consequences of international economic competition, ecology, human rights and international law, the future of the individual nation-state and regional and global government, global ideologies of the future and the "hot spots" of the world – today and in the near future. Students are required to develop and maintain a working familiarity with current developments around the globe. **(3)** **Prerequisite:** HUM 201

HIS 315 *Modern American Foreign Policy (formerly LAS 131)*: This course examines the theory and practice of foreign policy as conducted in the United States in the post-World War II/post-Cold War eras. Topics include historical traditions of U.S. foreign relations, the role of the presidency, Congress and non-governmental organizations in making and influencing foreign policy, concepts of national security and national interest, war as an instrument of foreign policy, the constitutional and legal bases of U.S. foreign policy and contemporary problems in U.S. foreign policy. **(3)** **Prerequisite:** HUM 201

HIS 320 *American National Character (formerly LAS 333)*: In this course we look into some of the works, from Tocqueville's *Democracy in America* to Bellah's *Habits of the Heart*, in which travelers, novelists and social scientists have tried to describe, explore and explain the uniquely American character. **(3) Prerequisite:** HUM 201

HIS 325 *History of the Plagues*: The course examines the history and literature of four plagues: the bubonic plague, the "virgin soil" epidemics of the Americas, the Spanish flu, and AIDS. We will look at physical causes of the diseases, immediate cultural responses, and the way these plagues produced long-lasting effects on local and global cultures, politics, and demographics. **(3) Prerequisites:** HUM102, COM115

HRI 600 G *Issues in Global Health*. This course will introduce students to important concepts of the public health fields and critical links between global health and social and economic development. Students will learn about health inequalities and the socioeconomic context of disease. While the course will be global in coverage, its focus will be on the developing world and on the health of the poor. **(3)**

HRI 610 G *Experimental Design and Research Methods*: Qualitative research has a long history in the social sciences. Its roots can be traced to anthropology, philosophy and sociology and its use as a method of inquiry goes back to the early decades of the twentieth century. Qualitative approaches are becoming part of alternative forms of research in medicine as practitioners look at the complex health issues that are often confronted. Qualitative research tends to seek answers to problems about which little is known and its aim is to elicit explanations from the "patient's point of view"; thus seeking the *meaning* or the *experience* of the individual. In other words, qualitative methods enable researchers to access areas of inquiry not typically amenable to quantitative research. In contrast, the use of "objective" measures based on diagnostic criteria, whether physiologically or laboratory-based often rely on numbers, but cannot be completely removed from qualitative aspects of a diagnosis. The aim of this course is to introduce some of the qualitative and quantitative research methods currently used in health care research and to explore how they can be appropriately and fruitfully employed. **(3)**

HRI 620 G *Diseases and Social Perception*: Diseases have meanings and those meanings translate into the way in which sufferers and society perceive and engage with their disease. Discourse on disease is often most charged when the disease in question threatens to cross borders, socioeconomic, national, or otherwise and, in these instances, the media is often complicit with "othering" the disease in a way that may have very real, material consequences. Examples from recent media coverage that

have "otherized" the etiology of diseases, whether the disease covered is SARS as an Asian disease, the swine flu as a Mexican disease, Tuberculosis as an immigrant disease, or HIV/AIDs as a Haitian disease. In addition, effective therapy and support is often hampered by how social perception stigmatizes diseases such as mental illness, autism, Down syndrome and the like. This is no less so in the case of the sufferer's self-image: when a woman undergoes a radical mastectomy, or when one is the victim of a disfiguring accident. The outcome, in terms of disease management and resources, is further influenced by the media's shaping of society's perception of the "disease of the day" through language. Through a look at several case studies and current literature, this course will focus on the ways in which disease takes on meaning and, in many cases, emerges as a signifier for something altogether different. **(3)**

HRI 630 G *Global Challenges in Environmental Medicine*: Environmental impact on human health with the development of what often reaches epidemic proportions of concern is not limited to the interaction between an etiological factor and the individual. In fact, what this environment becomes is often determined by human behavior. In a global community, it has become a priority in public health prevention and communication. In an interdependent environment, questions of water and air quality have political and social ramifications, with human health being the victim. The efforts to increase agricultural yields through pesticide and synthetic fertilizer use and chronic illness are no longer issues confined to a village or a limited region. The race for prosperity through industrial development and adoption of the superficial trappings of prosperity are not without their medical consequences. Through the use of case studies, the interplay between culture, geopolitics, ecology and medicine, are explored: from Minamata Bay to the Hudson River to the Faroe Islands; the Amazon to Toms River, New Jersey; the sands of Arabia to Los Angeles; from acid rain to nanoparticles; from the Nile to bottled water. **(3)**

HRI 640 G *Leadership and Professional Development for Health Care Professionals*: This course is designed to introduce the skills, concepts and interactions that are critical for the development and enhancement of leadership in the health care workplace. The lectures, discussions and exercises are targeted to physicians, pharmacists, clinical diagnosticians, nurses, biomedical researchers and industrial professionals. Guests and video topics will supplement the course work. The course requires student participation and student presentations. **(3)**

HRI 650G *Current Issues in Health Outcomes*: This course focuses on timely and contemporary issue in health outcomes research. It may include such topics as bioinformatics, regulatory issues, recent discoveries and/or strategies in disease diagnosis, issues of public

health and disease prevention based on breakthroughs, translational research, recent drug discovery and or diagnostic tools and the impact of genomics. This course requirement may also be satisfied with courses numbered 600 or higher in other related disciplines depending on the student's interest and background. Other substitutions from other programs must be approved by the department chair. **(3)**

HRI 660 G. Evidence-Based Medicine: In the age of pharmacogenomics and global health care, it has become evident that the traditional paradigm in medical practice and therapeutics is no longer applicable. Scientific evidence has demonstrated that the diversity in our genetic profiles, diet, nutrition, cultural practices, and religious belief impact on our ability to deliver effective therapy, communicate risk of disease, implement preventative measures and predict the efficiency of health outcomes. Through case studies, these convergent issues are discussed. **(3)**

HRI 701 G/ 702 G Thesis I-II. In consultation with the Department Chair and Program Director, the student will identify an appropriate area of research and mentor. The student will develop a research proposal per Department Graduate guidelines. The specific topic and nature of the research will be determined by the student and mentor who will seek approval from the Chair. On receiving approval, a committee of no less than three individuals, internal or external, will be constituted to act in an advisory capacity and for the proposal defense. On successful defense of the proposal the student will commence the research. Studies involving humans must be approved by the College's IRB. Studies involving animals must be approved by IAUCC. Projects involving data collection and management must adhere to GLP requirements. **(3 each)**

HSS 225 Econometrics. This course introduces students to multiple regression methods for analyzing data in economics and related disciplines. Extensions include regression with discrete random variables, instrumental variables regression, analysis of random experiments and quasi-experiments, and regression with time series data. Accordingly, the emphasis of the course is on empirical applications. **(3); Prerequisites:** M AT145, and 111

HSS 310 Regulatory Economics. This course introduces students to the role of the government in markets where competition "fails" and monopolies result. The course examines the creation of regulations and policies that affect parts of our everyday life, such as telecommunications, transportation and the health industry. Students study the role of governmental agencies, focusing on the environment, health and worker safety. The course makes use of current events to illustrate the role of these regulations and policies. **(3)**

HUM 101 Pre-Modern World: Humanities 101, the first semester in a required three-course sequence, is an interdisciplinary course that surveys major world intellectual and cultural traditions from pre-history to the onset of the Modern Era (circa 1700 C.E.). We will read widely in history, literature, philosophy, fine arts, politics and economics to develop an understanding of the interrelated forces that shaped the dominant cultures across the globe. The study of themes will be employed to engage with the topics of the course including faith and reason, nature and civilization, individual and community, identity and the other, gender, and technology. **(3)**

HUM 102 The Modern World: Humanities 102, the second semester in a required three-course sequence, is an interdisciplinary course that builds upon and incorporates ideas and skills from Humanities 101 as it surveys major world intellectual and cultural traditions from the onset of the Modern World (circa 1700 C.E.) to the end of the Cold War (circa 1989). Students read widely in history, literature, philosophy, fine arts, politics, and economics to develop an understanding of the interrelated forces that shaped the dominant cultures across the globe. The study of themes will be employed to engage with the topics of the course including faith and reason, nature and civilization, individual and community, identity and the other, gender, and technology. **(3); Prerequisite:** HUM 101

HUM 140 Travel in Literature and Images (formerly LAS 171): In this course, students study travel literature and images and also create their own travel reports to share with the class during the last few weeks of the semester. The course asks students to consider how travel and its images can help us to understand ourselves, others and the world. **(3)**

HUM 145 Challenged, Banned, Censored: Visual Art and Literature (formerly LAS 233): This course investigates various works of art and literature that have been, for whatever reason, challenged and banned from the public eye. Censors claim they are preserving the values of society, but their opponents claim they violate an individual's right to intellectual freedom. Discussions on visual art treat the shocking first Impressionist shows as well as the Nazi exhibit of "Degenerate Art." Readings include originally challenged or banned works that are now crucial elements of our cultural literacy. **(3)**

HUM 150 The Fantastic in Visual Art and Literature (formerly LAS 235): This course examines the genre of the fantastic as defined by the literary critic Tzvetan Torodov for literature and then applied to the medium of visual arts. Students read Torodov's *The Fantastic* and apply his definition of the fantastic to various literary works. The class also attempts to formulate a definition of the fantastic for visual art. **(3)**

HUM 155 *African-American Literature and Music (formerly LAS 257)*: In this course, students study African-American literature and music to understand African-American experiences and culture in historical, national and global contexts. We consider how African-American literature and music (e.g., spirituals, blues, jazz and rap) can help us to understand the world, others and ourselves. **(3)**

HUM 160 *Fiction and Film (formerly LAS 334)*: This course examines five novels critically in terms of the authors' lives and the society of the time, and then considers the films made from these novels. **(3)**

HUM 165 *Introduction to Greek Mythology through Literature and Film (formerly LAS 337)*: Students examine Greek mythology from several points of view and then see how Greek writers employed myths in several different plays. These plays will be studied as films. **(3)**

HUM 201 *The Contemporary World*: Building on the foundation established in Hum 101 & 102, this course presents a thematic approach to understanding contemporary issues and events. This course requires students to employ the themes of faith and reason, nature and civilization, individual and community, identity and the other, gender, and technology to engage with, understand, and evaluate the contemporary world. Topics and areas may include the following: The U.S. in a Global Context, The Middle East, The Digital Revolution, 21st Century Health Issues, The Use of Natural Resources, Nationalism, Religious Fundamentalism, Globalization, The Post-September 11th World, Contemporary Social Movements, as well as other timely topics and/or areas. **(3); Prerequisite:** HUM 102

HUM 240 *The Human Beast (formerly LAS 107)*: This course focuses on a prominent theme of Western thought: that one side of human nature is "animal-like," "base" or "wild." In order to understand the reasons for this theme and the consequences of a belief in such a side to human nature, the course compares political, philosophical, psychological and literary representations of man's animal nature. In the process, students discuss and evaluate theories of social relations and man's place in nature. **(3); Prerequisite:** HUM 102

HUM 245 *Visual Art and Literature of the 19th Century (formerly LAS 232)*: The 19th century is framed by artistic movements that questioned the prosaic limitations of daily existence. Literature and visual arts of the intervening decades, however, were marked by a desire to depict everyday reality. This course focuses on the development of the various movements (Romanticism, Realism, Naturalism, Impressionism, Symbolism) in the art of the 19th century and how these art forms reflect the thoughts and events of the age. **(3); Prerequisite:** HUM 102

HUM 250 *Visual Art and Literature of the 20th Century. What is "modern?" (formerly LAS 234)*: This course concentrates on the growing sense of modernity that began in European culture at the end of the 19th century, moved to the United States after World War II and now is creating the reaction of "post-modernism." Class discussion focuses on the rapidly shifting movements of modern art and parallel developments in literature. **(3); Prerequisite:** HUM 102

HUM 255 *Caribbean Literature and Music (formerly LAS 258)*: In this course, students study Caribbean literature and music to understand Caribbean, and especially Afro-Caribbean, experiences and culture in historical, national and global contexts. We consider how Caribbean literature and music (e.g., calypso, ska, reggae, dancehall, soca) can help us to understand ourselves, others and the world. **(3) Prerequisite:** HUM 101

HUM 260 *African Literature, Film and Music (formerly LAS 252)*: In this course, students study African literature, film and music to understand African experiences and cultures in historical, national and global contexts (a health care issue is also part of each offering of this course). Overall, the course considers how African literature, film and music can help us to understand ourselves, others, the world and the rich and culturally influential continent of Africa. This course is taught in conjunction with ACPHS's annual Africana Film Series. **(3); Prerequisite:** HUM 101

HUM 265 *Changing Images of Asia (formerly LAS 254)*: The basic assumption underlying this course is that popular novels and related films have had a dramatic, and often negative, impact on shaping our images of Asia, particularly Southeast Asia. This course will critically review and examine popular readings about Asia in general and Southeast Asia in particular and feature films based on the readings. **(3); Prerequisite:** HUM 101

HUM 270 *Japanese Language and Culture I (formerly LAS 240)*: This course offers basic language instruction and an introduction to the history and culture of Japan. Students will learn about the rich cultural history of Japan as a whole and also see its progression from feudal to modern society. The course will critically review literary and popular readings and also feature films and documentaries based on the readings. **(3); Prerequisite:** COM 115

HUM 275 *Japanese Language and Culture II (formerly LAS 260)*: In this second introductory course on Japanese, there is a greater emphasis on language with the goal of developing both conversational and reading skills at an solid basic level. With regard to written language, students will be expected to have already learned the hiragana and katakana syllabaries. This course will make extensive use of kana while beginning to learn kanji (Chinese characters). The conversational aspects of language will focus on expanding vocabulary, grammatical structure, and

sentence complexity. The language component will require extensive practice by the student outside of class time. The cultural component of the course will involve modern day Japan (post World War II) and interplay between various media and the evolution of the Japanese language. **(3); Prerequisite:** HUM 270 or permission of the instructor

HUM 280 *Studies in Leadership (formerly LAS 341)*: This course takes a biographical and theoretical approach in exploring the origins and nature of effective leadership. In particular, the course examines the lives of representative “leaders” in selected fields – including the military, business, education, the arts and health care – in order to identify the characteristics of effective leadership and to determine whether those characteristics are innate or learnable. **(3); Prerequisite:** HUM 102

HUM 285 *Culture and Customs of Senegal: Senegal Study* begins by preparing students from ACPHS, Union College, and SUNY Albany for their joint 3-week (June - July) study abroad in Senegal, West Africa. The U.S. portion of this course meets once per week and includes both 3 joint seminars with Africana specialists Drs. Eloïse Briere (SUNA), Cheikh Ndiaye (Union), and Kevin Hickey (ACPHS), and one field trip to New York City to visit a museum and Little Senegal. Students are introduced to Senegal, and each student pre-selects the activity s/he will focus on while resident in Africa. During the Africa portion of this course, students immerse themselves in Senegalese culture. Pairs of students reside with selected Senegalese families. Activities in Senegal include guest lectures at the West African Research Center (WARC) in Dakar, travel, cultural events, and approximately one week participating in a selected field such as healthcare, orphan care, women’s issues, the environment (eco-village), urban planning, teaching in a school, or studying dance, music, and/or language. Through guided tours in air-conditioned buses, students learn about the geography, animal life, history, economy, religions, languages, people, arts, cultures, and both urban and rural environments of this West African country. Daytime activities are supplemented by evening discussions and presentations at WARC. Each student keeps a daily journal as the basis of a travel report sent to at least 20 ACPHS students/faculty/staff. The report will include a final overview of the trip discussing Senegal/Africa in relation to personal changes and experiences as well as the course objectives. In the event that a student does not go to Senegal, that student will watch a series of African films and write a 20-page research paper in consultation with Dr. Hickey. Trip costs are approximately \$2,500 plus airfare. **(3); Prerequisite:** HUM 101

IPS 301 and IPS 302 *Integrated Problem Solving Workshops I and II*: In the integrated problem solving workshops students will be required to solve problems which incorporate information from the courses offered during that term as well as previously mastered material.

The goal of these workshops is to assist students in mastering course material in an active learning environment and in a manner that develops problem solving skills. These workshops are designed to cross disciplinary boundaries so that students will need information from more than one class to solve the problem and to foster deeper understanding of the material by the student. Students will be expected to use critical thinking skills, effectively communicate through speaking and function effectively in small group sessions. The workshops will be led by near-peers under the direction of appropriate faculty members. (1 each) **(Doctor of Pharmacy students only.)**

IPS 401 *Integrated Problem Solving Workshops III* – The integrated problem solving workshops will integrate information from the courses offered during that term (and build on previously mastered material) in a way that assists students to understand and apply course material through an active learning environment that supports the development of problem solving skills. In addition, these workshops are designed to cross disciplinary boundaries to foster deeper understanding of the material by the student. Students will be expected to employ critical thinking skills, effectively communicate and function efficiently in small group sessions. The workshops will be led by near-peers under the direction of a faculty course coordinator. IPS3 will build on the skills that were developed in IPS 1 – 2. The integrated problem solving workshops will integrate information from previously mastered courses with the courses offered during the Fall P2 semester in a way that assists students in mastering course material in an active learning environment and in a manner that helps to develop problem solving skills.. IPS III will begin to incorporate pharmacology and therapeutic topic areas into a clinically oriented discussion, evidence-based decision making and SOAP note preparation. IPS3 will introduce students to a more therapeutically focused case-based approach to learning. Faculty teaching in the concurrently taught courses will author clinical cases that will be used in IPS3. **(1); Pre-requisite: IPS 301, IPS 302**

IPS 402 *Integrated Problem Solving Workshops IV* - The integrated problem solving workshops will integrate information from the courses offered during that term (as well as previously mastered material) in a way that assists students in mastering course material in an active learning environment and in a manner that helps to develop problem solving skills. In addition, these workshops are designed to cross disciplinary boundaries to foster deeper understanding of the material by the student. Students will be expected to employ critical thinking skills, effectively communicate through speaking and function effectively in small group sessions. The workshops will be led by near-peers under the direction of a faculty course coordinator. IPS4 will build upon the skills and tactics taught in IPS workshops 1 through 3. More specifically, this workshop will start to build more clinically oriented decision making

and SOAP note documentation. For IPS4, students will take a more clinically oriented case-based approach to learning. Faculty teaching in the concurrently taught courses will author clinical cases that will be used in IPS4. Students will continue to advance the skills learned in IPS 1-3 with respect to evidence-based approaches to clinical cases, writing more complete and sophisticated SOAP notes, and engaging in critical thinking and problem-solving with respect to clinical scenarios which are developed using material taught in the previous and concurrent semester of Spring P2. **(1); Pre-requisite: IPS 301, IPS 302, IPS 401**

IPS 501 Integrated Problem-Solving Workshop V. The Integrated Problem Solving workshops will integrate information from the courses offered during that term (as well as previously mastered material) in a way that assists students in mastering course material in an active learning environment and in a manner that helps to develop problem solving skills. In addition, these workshops are designed to cross disciplinary boundaries to foster deeper understanding of the material by the student. Students will be expected to employ critical thinking skills, effectively communicate with peers and facilitators and function effectively in small group sessions. The workshops will be led by near-peer leaders or faculty members. IPS V will build upon the problem solving and patient-centered care skills introduced and reinforced in IPS workshops 1 through 4. IPS V assists students in mastering course material in an active learning environment and in a manner that helps to further develop and refine problem-solving skills. Building upon the problem-solving abilities and patient-centered care skills introduced and reinforced in previous IPS workshops, IPS V engages students in discussion of patient-oriented care that requires integration of course material and practice foundations from the previous semesters of the professional curriculum. IPS V is distinguished from previous IPS workshops by offering increasing complex patient case examples for students to be able to practice written and verbal professional communication that utilizes sound therapeutic thought processes and drug information retrieval skills for identifying and resolving medication-related problems in various patient care settings. Emphasis will be placed on the student ability to employ and articulate rational clinical decisions or recommendations that are evidence-based, including a formal written patient assessment and care plan in a formal Subjective, Objective, Assessment, and Plan written "SOAP" note. **(1); Pre-requisites: IPS 301, IPS 302, IPS 401, IPS 402.**

IPS502 Integrated Problem-Solving Workshop VI. The Integrated Problem Solving workshops will integrate information from the courses offered during that term as well as previously mastered material in a way that assists students in mastering course material in an active learning environment and in a manner that helps to develop problem solving skills. In addition, these workshops are designed to cross disciplinary boundaries to foster deeper

understanding of the material by the student. Students will be expected to employ critical thinking skills, effectively communicate with peers and facilitators and function effectively in small group sessions. The workshops will be led by faculty members. IPS-6 will build upon the problem solving and patient-centered care skills introduced and reinforced in IPS workshops 1 through 5. IP-6 is the sixth and final workshop of the Integrated Problem Solving series. IPS-6 is a continuation of previous workshops in that it will be a small-group, facilitator-led discussion centered around patient care that integrates materials taught previously or concurrently in the required PharmD curriculum. IPS-6, however, is distinguished from previous workshops in that the complexity of patient cases will be enhanced and will require students to present at least one evidence-based professional presentation (seminar component). Cases for IPS-6 will be authored by Pharmacy Practice faculty and include challenging multidisciplinary patient scenarios, therapeutic controversies and actual and potential drug-related problems for students to evaluate. Students will be required to critically evaluate literature to synthesize appropriate evidence-based recommendations that will be presented in small group discussions as well as in individual formal seminar case presentations. The practice of Medication Therapy Management will be reinforced in IPS-6. **(3); Pre-requisites: IPS 301, IPS 302, IPS 401, IPS 402, IPS 501.**

LIT 130 Creative Writing (formerly LAS 133): In this course, students read and write fiction, non-fiction and poetry. In a writing workshop setting, students also read and respond to each other's work. **(3)**

LIT 135 The Short Story (formerly LAS 212): In this course, students read, discuss and interpret the short story as it occurs in one or more periods or places. **(3)**

LIT 140 Utopian Literature (formerly LAS 216): Humans "dream of things that never were and say, 'Why not?'" From descriptions of the Golden Age and Eden to the latest feminist science fiction, students analyze our changing ideas of the possibility of achieving and sustaining a perfect human society. **(3)**

LIT 145 Crime and Punishment (formerly LAS 236): In this class, students read fiction, non-fiction and poetry and view films that deal with the issues of crime and punishment in society. Students write essays and journals responding to the texts and films, and investigate these issues in order to come to an understanding of the complexity of the issues and an awareness of their own stances on these questions. **(3)**

LIT 150 Shakespeare (formerly LAS 237): This course focuses on six or seven of Shakespeare's plays. Lectures provide biographical and historical background and class discussions concentrate on the texts themselves, considering structure, character development, imagery

and theme. The class also considers the essential differences between comedies, tragedies, histories and romances and traces developing themes from one play to another as we move chronologically through selections of Shakespeare's work. Assignments include journal responses, formal analytical essays and a final panel discussion of a motif traced from play to play throughout the semester. **(3)**

LIT 155 *The Novel (formerly LAS 321)*: In this course students read and discuss English, American and European novels. **(3)**

LIT 160 *The Drama (formerly LAS 323)*: In this course students study a selection of dramatic works ranging from Classical Greece to the present. Students engage with a selection of recurring issues central to the human experience as part of considering how the communal experience of "the theater" can help us to understand ourselves, others and the world. **(3)**

LIT 165 *American Women Writers (formerly LAS 336)*: How many 19th and 20th century women writers can you name? This course will explore the works and contributions to American literature of some well-known and lesser-known women writers. We will consider several questions. Is there a tradition of American women writers? Do these writers have issues, concerns and themes in common? What are some of the historical and cultural forces that have shaped these writers? Do they speak to our own lives – as men and women – at the start of the 21st century? Students will respond to texts in a variety of writing experiences (journals, essays, fiction and poetry), develop confidence and competence as readers and writers and gain an appreciation for, and enjoyment of, the texts and the writers. **(3)**

LIT 170 *Chaucer (formerly LAS 331)*: This course introduces students primarily to Geoffrey Chaucer's "Canterbury Tales" and peripherally to the author's life and times. Through a close reading of selected tales, reactionary and analytical writing and individual and group oral presentations, students immerse themselves in Chaucer's stories of a group of pilgrims setting off from London on a pilgrimage to the shrine of St. Thomas Becket, buried in Canterbury. The tales at once reveal the social structure and historical milieu of medieval England, thus broadening student understanding of the medieval world view and, by implication, our own, and prompt discussion about life choices, philosophies and attitudes. Simultaneously, students gain further experience in critical reading, thinking, writing and speaking. **(3)**

LIT 180 *Native American Mythology (formerly LAS 246)*: In this course, students study various elements of mythology from diverse Native American cultures of northern and central America. Particular themes relevant to native cultures are examined and then placed in the context of what they mean to native world views and world

mythologies. Some of the major themes include creation myths, concepts of illness and death and cyclical time. Some of the major figures examined include Grandmother Spider, Changing Woman, Sedna and Coyote. **(3)**

LIT 185 *Culture and Individuation (formerly LAS 335)*: In this course, students consider the factors and processes that aim to make us all the same as well as those that make each of us unique. Readings are drawn from the literature of mythology, philosophy and the human and biological sciences. **(3)**

LIT 210 *English Novel (formerly LAS 117)*: This course will provide a close critical reading of selected English novels, including the works of E.M. Forster, Aldous Huxley and Thomas Hardy. **(3); Prerequisite:** HUM 102

LIT 215 *American Literature Since 1900 (formerly LAS 147)*: This course considers the contributions of 20th and 21st century American literature, with an emphasis on character, structural and thematic analysis against archetypal patterns of lost innocence, the journey home and resurrection. The class will search for a tentative definition of the contemporary American hero from a diverse selection of authors: male and female, black and white, Northern and Southern. In written and oral assignments designed to develop the student's own response to the literature, they will search for touchstones for their own lives and the lives they read about. **(3); Prerequisite:** HUM 102

LIT 220 *Suicide and/as Literature: East-West (formerly LAS 161)*: The phenomenon of suicide, familiar as an object of sociological inquiry and clinical therapeutic concern, also has been a prevalent narrative component of literary traditions throughout the world. This course will investigate suicide as a comparative conceptual device in a range of literary traditions extending from Europe to Africa, the United States, Japan and India. **(3); Prerequisite:** HUM 102

LIT 225 *World Masterpieces I (formerly LAS 253)*: This is the first of two courses offered to enhance the understanding of narratives that cover milestones in literature and culture from around the world. The canonical texts from various countries/regions will focus on the multiple origins and histories of the cultures and polities being considered. Selections range from the ancient (World Masterpieces I) to the modern (World Masterpieces II). **(3); Prerequisite:** HUM 101

LIT 310 *Middle Eastern Literature and Film*: In this course, students study Middle Eastern literature and film to understand Middle Eastern, and especially Muslim, experiences and culture in historical, national, and global contexts. We consider how Middle Eastern literature and film can help us to understand ourselves, others and the world. **(3); Prerequisite:** HUM 201

LIT 315 *Irish Literature Since 1900 (formerly LAS 413)*: This course considers the literature that emerged from 20th - century Ireland, literature formed both by the search for a national identity and by universal forces that transcend both time and place. Through reading and discussion of a selection of Irish fiction, drama and/or poetry, we gauge the power of the word to entertain, to communicate, to self-preserve and even to wage war. Assignments include journal responses, analytic essays and a final panel discussion of a motif traced throughout the readings during the semester. **(3); Prerequisite:** HUM 201

LIT 320 *The Epic (formerly LAS 311)*: The Epic is a course that focuses on defining and understanding the most ancient written genre of western culture. Students will examine epics from the ancient world to the present and come to an understanding of why the poem being studied is an epic, how this particular epic defines, and in some cases redefines, the genre, and what the universal themes of the piece say about the human condition. Possible epics for analysis include *The Iliad* and *The Odyssey* by Homer, *The Aeneid* by Virgil, *The Divine Comedy* by Dante, and *Paradise Lost* and *Paradise Regained* by Milton. Texts will change each time the course is offered. Some semesters will include the study of an epic and later re-workings of the story in literary history to see how different eras translate old forms and stories for their own times. Assignments will include formal and informal writing, and group and individual oral presentations. The small class size will allow for regular informal discussion. **(3); Prerequisites:** COM 115, HUM 201

MAT 111 *Calculus*: This course is a study of algebraic and transcendental relations, with emphasis on applications in the physical sciences. Limits, differentiation, applications of derivatives, related rates, implicit differentiation, integration by substitution and applications of integration will be the main topics covered. **(4)**

MAT 115 *Introduction to Laboratory Data*: This course introduces the mathematics needed to collect and describe data from laboratory sciences. The course covers assessment and evaluation of measurement and experimental error and descriptive statistics. It also covers evaluating, solving and graphing relationships that are linear, exponential and logarithmic. Linear regression is used to fit data for zero (linear) and first (exponential) order processes. **(2); Lecture and Laboratory**

MAT 121 *Calculus I*: This is the first course in a two-semester sequence of calculus involving the study of algebraic and transcendental relations, with emphasis on applications in the physical sciences. Limits, differentiation, applications of derivatives, related rates, implicit differentiation, integration by substitution and application of integration will be the main topics covered. **(4)**

MAT 145 *Elementary Statistics*: This course covers general statistical methods used in the collection, presentation, analysis and interpretation of statistical data. It includes measures of tendency, dispersion, probability theory, probability distributions, central limit theorems, hypothesis testing on proportions and means, ANOVA, regression analysis and correlation. This course will require statistical applications using computer software. Applications in biology, chemistry, health care and pharmaceutical science will be explored. **(3)**

MAT 211 *Calculus II*: This course is a continuation of MAT 121 and is a study of algebraic and transcendental relations, with emphasis on applications in the physical sciences. Transcendental functions, applications of integration, integration techniques, infinite series and sequences, plane curves, parametric equations and polar coordinates will be the main topics covered. **(4); Prerequisite:** MAT 121

MAT 411 *Randomized Controlled Trial Methods via CONSORT*: The Consolidated Standards of Reporting Trials (CONSORT) encompasses various initiatives developed to alleviate the problems arising from inadequate reporting of randomized controlled trials (RCTs). The main product of CONSORT is an evidence-based, minimum set of recommendations for reporting RCTs. The course, which will outline and detail many of the CONSORT guidelines regarding methods and results, will benefit those wishing to develop a better understanding of the statistical methods commonly found in the RCT literature as well as discerning important analytical components of pharmaceutical research. Topics will include discussions of sample size, power, outcomes, summary of results and statistical methods. **(1); Prerequisites:** PHD 410, MAT 145 or permission of the instructor

MUS 110 *The World's Music (formerly LAS 247)*: This course explores world cultures through their music. The course begins with an overview of some different ways of listening to music and exploring sound as a cultural phenomenon. A primary goal of this course is to help students move beyond some preconceived notions of music in order to open minds and ears to a wide variety of music through a selection of case studies, including, but not limited to, Africa, Asia, Latin America and ethnic immigrant cultural communities in North America. The music of these cultures is explored both as a product and reflection of culture and as a form of artistic expression. **(3)**

PAD 316 *Pharmacy Management*. This course gives the future pharmacy practitioner a basic understanding of sound management principles and skills for the operation of any pharmacy. **(3)**

PAD 317 *Principles of Management*. Analysis and description of management principles and processes from

the classical and behavioral points of view. Suggested topics include job satisfaction, turnover, productivity, motivation, job design, staffing, performance appraisal, leadership and communication. **(3)**

PAD 318 *Organizational Management Theory*. This course is about organizations – large and small, simple and complex, profit and nonprofit – from the position that organizational theory can explain the structure and functioning of a great variety of different establishments. The course aims to systematize a rapidly growing body of knowledge about organizations and to show how this knowledge can be applied to the practical work of designing effectively performing organizations. Focus will take place on the individual or groups of individuals, to the extent that their behavior affects the organization they are operating in or are themselves affected by the way the organization is functioning. **(3)**

PAD 322 *TQM in Health Care*. This course provides students with an overview of total quality management (TQM) theory and techniques. This study of TQM focuses on the health care services sector. The concept of quality is examined from two perspectives: medical error reduction and optimal health care outcomes. Special consideration is given to the application of TQM to the delivery of pharmaceutical care. The TQM movement has revolutionized industry during the past 20 years. The manufacturing sector of the U.S. economy was first to adopt TQM processes. The services sector, however, has not embraced TQM to the same extent. The health care services industry has much to gain from the adoption of TQM. With increased scrutiny from government and a demand for greater accountability from payers and patients alike, the health care services industry has begun to accelerate the adoption of quality improvement initiatives. **(3); Prerequisite:** PAD415

PAD 325. *Issues in Health-System Administration*. Successful administration of pharmacy practice in a health system requires attention to many issues. Finance and cost-containment, quality improvement, government regulations, industry trends and human relations are all significant factors that impact upon the administration of a pharmacy department. This course examines the various skill sets required for administration of a health-system pharmacy. Examples of topics discussed in the course include procurement, formulary management, automation and information technology, reimbursement and human relations. **(3); Prerequisite:** PAD415

PAD 333 *Social Aspects of Health Care*. This course educates students about the relationship between human health and society, economics, politics, ideology and biology through examination of the history of human health policy and contemporary issues. **(3); Prerequisite:** PAD415

PAD 351 *Introduction to Sales and Marketing in the Pharmaceutical Industry*. This course will provide students with a basic understanding of the pharmaceutical industry, with an emphasis on pharmaceutical sales and marketing. Attention also will be given to areas such as manufacturing, government regulations and research, and their relevance to pharmaceutical sales and marketing. The student will have an understanding of how these areas relate to pharmaceutical industry customers such as hospitals, practitioners, managed care organizations, employers, insurance companies, long-term care and consumers/patients. Emphasis will be placed on the student's ability to understand the pharmaceutical industry and its customers, and to apply this knowledge in sales and marketing situations. **(3); Prerequisites:** ECN 217 and PSY 201

PAD 365 *Excel Applications for Decision Making*. Excel Applications for Decision Making is a 3-credit elective course intended to train students to organize, analyze, and present data using MS Excel in order to facilitate decision making. As health care data becomes more available, students will increasingly be asked to arrange, manage, and analyze data in order to better inform decision makers. In this course, students will utilize some of the advanced features of MS Excel software to organize, analyze, and summarize data. Students will then format spreadsheets and create charts to prepare business quality reports. Students will also utilize Excel add-in software to conduct decision modeling with simulations and present results of these analyses. Decision analysis is an analytical technique which allows users to diagram, design, and estimate results of a quantitative decision while testing a variety of assumptions using simulations. **(3)**

PAD 368 *Qualitative Research Methods*. The goal of this course is to give students an opportunity to learn how to design, implement and interpret results from qualitative research. Applications of qualitative research will be discussed, providing students with firsthand knowledge of practices in market research and community needs assessment. The methods learned in this course also will be applied to a student-selected group research project, culminating in a presentation. **(3)**

PAD 391 *Topics in Public Health*. This course will provide students with a basic understanding of the public health component of the U.S. health care system. Students will be introduced to the historical development of public health (e.g., food and water safety, sanitation and disease monitoring). The current U.S. public health system – both at the state and federal levels – will then be discussed. Key measures of public health will be covered, with an emphasis on disease prevention and in areas where pharmacists contribute to public health goals (e.g., immunization programs). Open to students in years three, four and five only. **(3)**

PAD 393 *Introduction to Epidemiology.* This is an introductory course in the methods of epidemiology in health care. Epidemiology is the study of the distribution of diseases and the discovery of factors that determine the causes, spread and prevention of disease. This course will provide an introduction to the major analytical methods, calculations and research methods commonly used in epidemiology. The course also will provide many current applied examples of how epidemiology is being used to evaluate contemporary health issues, with special emphasis on the role of prescription drugs and pharmacy services in selected diseases. **(3); Prerequisites:** COM 115 or equivalent

PAD 415 *US and Global Healthcare Systems* – This course presents a systematic comparative analysis of the evolution, administrative structure, finance, and provision of medical care in selected countries throughout the world. Equity/inequity and the current and looming effects of globalization will be explored. Health and illness are familiar concepts to all of us, but we are used to thinking of them as biological phenomena. This course will expand your understanding of health and illness by looking at them as socio-cultural and socio-economic phenomena. Important differences rooted in culture, ethnicity, social, economic and political factors will be examined to encourage innovative "framing" of U.S. health public policies. This course presents and facilitates the development of an analysis of major health service delivery and management issues from an international perspective. Each country in the world possesses and implements a unique health service delivery system. While there may be many factors, components and issues in common, there are nonetheless many differences. It is important to learn about and analyze other country's healthcare systems, to learn how they treat similar issues and to discover innovations. Improvement often comes through change and innovations, and this study will not neglect the opportunity to learn from others, especially those middle and lower income countries implementing interesting and innovative reforms. By utilizing a comparable model of exploration, we will gain an understanding of the similarities and differences of industrial countries, third world countries and tribal programs in the US. **(3)**

PAD 510 *Pharmacy Jurisprudence – Vermont.* Examines State of Vermont and Federal legal requirements associated with pharmacy practice and operations including regulation of pharmacy personnel, pharmacies, pharmacy departments, controlled substances, dispensing functions, and prospective drug review and counseling. This course will prepare students for the Multistate Pharmacy Jurisprudence examination (commonly abbreviated as the MPJE). MPJE is a standard examination created by the [National Association of Boards of Pharmacy](#) (NABP) to help individual state boards of pharmacy assess an individual's competency and

knowledge so that he or she may be given a license to practice pharmacy. The MPJE tests knowledge of pharmacy law both state and federal. It is required as a prerequisite for a pharmacy licensure.

PAD 511 *Jurisprudence. Albany.* This course provides an overview of the history of drug law in the United States. The current federal and New York State state laws are reviewed in depth with a focus on passing the MPJE exam®. **(3)**

PAD 515 *Pharmacoeconomics and Health Policy.* This is the second course in the sequence of Administration-Management-Economics component of the PharmD curriculum. This course will provide students with an introduction to the principles and techniques of pharmacoeconomics and health outcomes evaluation, and to the methodologies used by decisionmakers and stakeholders to draft and implement health policy. It builds on the economic principles presented in health economics (US and Global Health Care Systems) to describe the major components of the current U.S. healthcare system. Building on that foundation, the course introduces the techniques used for evaluation of health care interventions. These methods provide the basis for measuring and assessing the economic and non-economic consequences of healthcare interventions, emphasizing drug therapy, and pharmaceutical services. Examples of some of the economic methods introduced include: cost of illness analysis, cost-minimization, cost-effectiveness analysis, cost-benefit analysis, and decision analysis. Non-economic measures discussed include general and disease specific quality-of-life (QOL) assessments and health status measurement. Students will demonstrate the ability to critique published studies which use pharmacoeconomic or health outcomes techniques, assessing the quality of the research and drawing relevant conclusions. **Pre-requisite: PAD415**

PAD 521 *Pharmacy Administration.* Effective administration in pharmacy is contingent upon an appreciation for and understanding of the pharmacy and all of its stakeholders. This course has been designed to focus on the administrative aspects of the practice of pharmacy. Some of the topics covered include strategic and business planning, operations management including the topics of technology selection and quality management, financial topics include third party contract evaluation, inventory management, and financial analysis, and human resources management. The overall purpose of the course is to prepare students to be knowledgeable about and sensitive to the issues concerning pharmacy from the perspectives of all stakeholders (e.g., providers, manufacturers, employees) and to develop the leadership skills necessary for success in practice. **(3); Pre-requisites: PAD 415, PSC 441**

PAD 615 G *Pharmacoeconomics and Health Policy.* This course will provide students with an introduction to the principles and techniques of pharmacoeconomics and health outcomes evaluation, and to the methodologies used by decisionmakers and stakeholders to draft and implement health policy. It builds on the economic principles presented in health economics (US and Global Health Care Systems) to describe the major components of the current U.S. healthcare system. Building on that foundation, the course introduces the techniques used for evaluation of health care interventions. These methods provide the basis for measuring and assessing the economic and non-economic consequences of healthcare interventions, emphasizing drug therapy, and pharmaceutical services. Examples of some of the economic methods introduced include: cost of illness analysis, cost-minimization, cost-effectiveness analysis, cost-benefit analysis, and decision analysis. Non-economic measures discussed include general and disease specific quality-of-life (QOL) assessments and health status measurement. Students will demonstrate the ability to critique published studies which use pharmacoeconomic or health outcomes techniques, assessing the quality of the research and drawing relevant conclusions. **Pre-requisite: PAD 415.**

PAD 618 G *Organizational Management Theory.* Course description will be provided in course syllabus.

PAD 621 G *Pharmacy Administration.* Effective administration in pharmacy is contingent upon an appreciation for and understanding of the pharmacy and all of its stakeholders. This course has been designed to focus on the administrative aspects of the practice of pharmacy. Some of the topics covered include strategic and business planning, operations management including the topic of technology selection and quality management, financial topics include third party contract evaluation, inventory management, and financial analysis, and human resources management. The overall purpose of the course is to prepare students to be knowledgeable about and sensitive to the issues concerning pharmacy from the perspectives of all stakeholders (e.g. providers, manufacturers, employees) and to develop the leadership skills necessary for success in practice. Students will be allowed to practice skills developed in the course through case studies based on different types of practice settings.

PAD 628 G *Human Resources Management.* Course description will be provided in course syllabus.

PAD 635 G *Economic Quantitative Analysis I.* Economic quantitative analysis is a broad subject area, with topics ranging from basic statistics to advanced regression techniques. This course takes a mathematical modeling approach. The format is designed to provide a foundation in linear programming and probabilistic techniques. A wide

range of decision making tools will be developed and used. This is the first in a two-course sequence.

PAD 672 G *Experimental Design and Data Analysis.* This course will provide students with a basic knowledge of experimental design and biostatistics. Students will learn how to design experiments and analyze the results. Specifically, it will cover single factor experiments, multiple factors, full factorial and fractional factorial designs and screening designs, the fundamentals of hypothesis testing and relevant biostatistics.

PAD 675 G *Introduction to Health Systems.* Course description will be provided in course syllabus.

PAD 681 G *Economic Quantitative Analysis II.* This course is a continuation of Economic Quantitative Analysis I and takes a mathematical modeling approach. The format is designed to provide a foundation in linear algebra and advanced mathematics, such as differential equations. A wide range of decision-making tools will be developed and used.

PAD 693 G *Epidemiology.* This course covers the principles and methods of epidemiologic investigation including describing the patterns of illness in populations and research designs for investigating the etiology of disease. Introduces quantitative measures to determine risk, association and procedures for standardization of rates. It also reviews application of basic principles and methods in the design and conduct of epidemiologic studies. Topics include the development of research questions; overview of epidemiologic study designs; sampling, sample size, and selection bias; techniques for data collection, sources of secondary data, and the evaluation of measurement and information bias; confounding and effect modification; techniques for simple and stratified analyses; and an introduction to mathematical modeling in epidemiology.

PAD 715 G *Applied Pharmacoeconomics.* Course description will be provided in course syllabus.

PAD 718 G *Issues in Health System Administration.* Successful administration of a pharmacy practice in a health system requires attention to many issues. Finance and cost-containment, patient safety and quality improvement, government regulations, industry trends and human relations are all significant factors that impact upon the administration of any department in a health system. This course examines the various skill sets required for administration of a health-system pharmacy. Examples of topics discussed in the course include quality and patient safety, formulary and P&T Committee management, budget management, automation and information technology, regulatory and standards compliance.

PAD 721 G *Research Methods in Pharmacy Administration*. Course description will be provided in course syllabus.

PAD 725 G *Econometrics*. This course introduces students to multiple regression methods for analyzing data in economics and related disciplines. Extensions include regression with discrete random variables, instrumental variables regression, analysis of random experiments and quasi-experiments, and regression with time series data. Accordingly, the emphasis of the course is on empirical applications.

PAD 733 G *Thesis in Health Outcomes Research I*. Students will pursue a thesis project in a health outcomes research area selected to appropriately match their chosen career goals. In conjunction with work in Scientific Communication, students will perform an in-depth literature search and develop a testable hypothesis. The student and mentor then will work together to define a series of experiments that can be conducted to test the hypothesis. The student will learn the necessary techniques, conduct the experiments and analyze the data under the guidance of the mentor. Work on the project is continued in Thesis in Health Outcomes Research II.

PAD 741 G *Health Informatics*. Course description will be provided in course syllabus

PAD 746 G *Clinical Trials Management*. Course description will be provided in course syllabus

PAD 751 G *Marketing in Health Care*. This course will provide students with a basic understanding of marketing in the health care industry, with an emphasis on pharmaceutical sales and marketing. Attention will be given to areas such as manufacturing, government regulations and research, and their relevance to pharmaceutical sales and marketing. The student will have an understanding of how these areas relate to health care industry customers such as hospitals, practitioners, managed care organizations, employers, insurance companies, long-term care and consumers/patients. Emphasis will be placed on the student's ability to understand the health care industry and its customers, and to apply this knowledge in sales and marketing situations.

PAD 761 G *Health Care Ethics and the Law*. Course description will be provided in course syllabus.

PAD 768 G *Qualitative Research Methods*. The goal of this course is to give students an opportunity to learn how to design, implement and interpret results from qualitative research. Applications of qualitative research will be discussed, providing students with firsthand knowledge of practices in market research and community needs assessment. The methods learned in this course also will

be applied to a student-selected group research project, culminating in a presentation.

PAD 773 G *Research Seminar*. This course is designed to further develop students' skills in effective presentation of scientific data. Emphasis will be on the analysis of original student research data, the process of forming scientific conclusions and/or hypotheses based on the data, and the dissemination of the information in the form of a research seminar. Students also will participate in the evaluation process of other student research presentations.

PAD 783 G *Thesis in Health Outcomes Research II*. Students will pursue a thesis project in a health outcomes research area selected to appropriately match their chosen career goals. In conjunction with work in Scientific Writing, students will perform an in-depth literature search and develop a testable hypothesis. The student and mentor then will work together to define a series of experiments that can be conducted to test the hypothesis. The student will learn the necessary techniques, conduct the experiments and analyze the data under the guidance of the mentor. Work on the project is continued from Thesis in Health Outcomes Research I

PAD 791 G *Topics in Public Health*. This course will provide students with a basic understanding of the public health component of the U.S. health care system. Students will be introduced to the historical development of public health (e.g., food and water safety, sanitation and disease monitoring). The current U.S. public health system – both at the state and federal levels – will then be discussed. Key measures of public health will be covered, with an emphasis on disease prevention and in areas where pharmacists contribute to public health goals (e.g., immunization programs).

PAD 810 G *Administrative Research Project*. This course is designed to integrate the concepts and skills associated with administrative problem-solving learned throughout the MS in Pharmacy Administration program. Students complete a research project addressing an administrative issue in a health service organization. **(Capstone course)**

PHD 410 *Drug Information and Biostatistics* – This course addresses drug information retrieval, analysis and application. It will instruct students how to obtain and evaluate primary and secondary literature as it relates to the provision of pharmacy/pharmaceutical care. Through the lecture series, students will acquire knowledge of library resources, study design, biostatistics using relevant examples and a method of drug literature evaluation. Two written assignments will provide students an opportunity to apply knowledge learned during lecture and develop literature retrieval and evaluation skills using examples from primary and secondary literature. Students will also be introduced to general drug information topics including; the approach to answering drug information

questions, adverse drug event reporting, medication use evaluation and evidence based medicine. Knowledge and skills developed in this course will prepare students for subsequent IPS workshops, seminar and pharmacotherapy course offerings. **(2); Prerequisite:** .MAT145, MAT227

PHD 451 Pharmacist-Assisted Tobacco Cessation. This clinical elective provides students with the necessary knowledge and skills to provide comprehensive tobacco cessation counseling to patients who are current or former tobacco users. The course approaches the concept of nicotine addiction from a pharmacologic, physiologic and psychological perspective. Communication and problem-solving skills are developed in the classroom and enhanced via participation in a tobacco cessation clinic. Upon completion of the course, students will demonstrate competency in tobacco cessation encounters, including assessing a person's readiness to quit, applying tailored strategies to assist patients with quitting and selecting appropriate tobacco cessation aids. **(1)**

PHD 541 Pharmacists as Immunizers. Pharmacy-Based Immunization Delivery is a hybrid course that integrates self-learning, live lecture, and vaccine administration skills assessment that was developed by the American Pharmacists Association in conjunction with the National Immunization Program, Centers for Disease Control and Prevention. The course provides students with the skills necessary to become a source for vaccine advocacy, education, and administration. The core curriculum of the course includes a review of the basics of immunology as it pertains to vaccines, provides immunization education and training, as well as provide the necessary skills to develop a successful immunization service for a wide variety of patients in many different settings. The completion of this course will result in a certificate that satisfies the legal requirement for training needed for pharmacists to immunize in 49 out of 50 states. **(1); Prerequisites: PSL432**

PHI 140 Spiritual Healing (formerly LAS 250): This course will look at several different examples of contemporary spiritual healing practices drawn from many of the religions and spiritual movements from around the world. The primary objectives of the course are: a knowledge and appreciation for various examples of spiritual healing practices and the development of an analytical and tolerant assessment of the theoretical and practical differences and similarities between contemporary spiritual and scientific healing practices. **(3)**

PHI 145 Critical Thinking (formerly LAS 861): The purpose of this course is to engage students in the process of thinking more critically. Critical thinking requires knowledge of one's predispositions; hence, the course begins with a focus on self-awareness and moves to writing and critiquing samples of inductive and deductive reasoning. Special themes in this course will include the logic behind the scientific methods, the pervasive nature

of cultural assumptions and political hype. Collaborative work is encouraged throughout the course. **(3)**

PHI 150 Theories of Human Nature (formerly LAS 281): Most discussions of people's behavior and motivations end with some unexamined assertion about basic human nature. Students weigh several of the many contradictory theories that are held about human nature. **(3)**

PHI 155 Philosophical Problems (formerly LAS 123): The nature of philosophy is approached in this course through a critical analysis of selected philosophical problems. **(3)**

PHI 160 Political and Social Theory (formerly LAS 124): How is society possible? Are freedom and equality incompatible? What is justice? Students evaluate some of the answers to such questions by authors from Plato and Aristotle to John Rawls and Martin Luther King Jr. **(3)**

PHI 210 Comparative Religion (formerly LAS 215): This course will provide a survey of and an engagement with the contemplative or wisdom dimension of four traditions in world religions: Christianity, Buddhism, Native American Religion, and Islam (Sufism). Rather than look at these traditions only from the outside, in a descriptive manner, we will read texts from authors within these traditions who attempt to explain and describe their understanding of the contemplative/meditative dimension of each tradition. From this perspective, fundamental questions will be examined and discussed such as: What is the spiritual psychology of a human being? What is the human heart and what role does it play in human knowing? How does one cultivate a spiritual presence? What is the relationship between the human and the divine?; **(3)**
Prerequisite: HUM 102

PHI 215 Religions of Asia: This course provides a survey of the major religious traditions of Asia, including Hinduism, Buddhism, Taoism, Confucianism, and Islam. The course emphasizes how each tradition shapes the aims, views, and experiences of the people who participate in them. With each religion we will investigate the following: What are the central texts and practices of each tradition? What are the most important questions that these traditions ask? How have these faiths evolved to the present day? How has each tradition been changed by its encounter with modernity and how has each religion in turn influenced modernity? The course will conclude with a consideration of some of the ways the traditions of Asia have influenced contemporary spirituality and new religions, especially in the West. **(3)**

PHI 240 Islam and Sufism (formerly LAS 238): This course will provide an introduction to Islam and Sufism. The first section will serve as a basic introduction to the Islamic worldview, the Koran and the life of the Prophet Muhammad. The aim will be to arrive at an understanding of the experience of Islam, paying close attention to how

Muslims have defined themselves using their own language. Next, we will look more closely at the Islamic sapiential tradition, Sufism and, in particular, the major authors who have defined and informed this important dimension of Islam in terms of both theology and ritual. **(3)**
Prerequisite: HUM 101

PHI 245 *Introduction to Buddhism (formerly LAS 249):* This course will provide an introduction to Buddhism. The first section will serve as a basic introduction to the Buddhist worldview, the life of the Buddha and the basic texts of the tradition. The aim will be to arrive at an understanding of the experience of Buddhism, paying close attention to how Buddhists have defined themselves using their own language. There also will be an examination of different schools/approaches to Buddhism, including Zen Buddhism and Tibetan Buddhism. Additionally, there will be a consideration of Buddhism in America and the role of women in Buddhism today. **(3); Prerequisite:** HUM 101

PHI 250 *Religion as the Search for Meaning (formerly LAS 271):* Students examine the major religious traditions within the framework of an analysis of humankind's fundamental need to find meaning in the world by explaining and maintaining proper relationships among the self, society and nature. **(3); Prerequisite:** HUM 102

PHI 255 *Religion and Film (formerly LAS 272):* Religion is a pervasive and active cultural event and this course begins with the concept that popular culture and film function as myth for our society. Students will view contemporary films from different genres to facilitate discussion about various dimensions of and issues in both religious and philosophical thought. The class will employ images, metaphors and teachings found in religion to discuss the layers and elements visually and audibly portrayed in a series of films. Through the three critical approaches of theology, mythology and ideology, this course will examine how religion pervades modern and contemporary cinema and how one may engage in dialogue with this phenomenon. **(3); Prerequisite:** HUM 101

PHM 318 *Foundations of Pharmacy.* A dynamic experiential introduction to the profession of pharmacy. Coursework is a combination of online activities and experiential activities designed to expose students to a comprehensive vision of pharmacy practice. Most importantly, this course formally introduces the concept of professionalism and serves to initiate the professionalization of all students in the Pharm.D. program. Topics for student activities and reflection will include the history and future of pharmacy, professionalism, patient-centered care, medical terminology, information literacy, pharmacy in the media, career planning, cultural competency, jurisprudence and addiction in health care professionals. Students will be given the opportunity to develop empathy for patients through experiential

assignments. This course is a prerequisite for the Introductory Pharmacy Practice Experience. **(1)**

PHM 322 *Pharmacy Marketing.* This course examines and identifies characteristics of the pharmaceutical marketing process. After exploring market behavior, motivation factors affecting the market and analytical techniques of market investigation, the class covers marketing institutions in the pharmaceutical industry, competitive practices and a comparison of external and internal controls. **(3); Lecture and Laboratory**

PHM 329 *Self Care/OTC* – This course will guide the student through an interactive approach to self-care. An appreciation of the pharmacist's role in self-care will be taught with an emphasis on a patient case problem-solving model to aid in the triaging of patients and self-care therapy selection. Treatment options that will be discussed will range from non-drug therapy to non-prescription medications and devices to herbal products and dietary supplements. **(Doctor of Pharmacy Students only.)**

PHM 334 *Environmental Health.* This course is designed to provide students with an introduction to and overview of the key areas of environmental health. Using the perspective of the population and community, the course will cover factors associated with the development of environmental health problems. Students will gain an understanding of the interaction of individuals, communities, and economic activity with the environment, the potential impact on health of environmental agents, and specific applications of concepts of environmental health. The course will cover principles derived from core environmental health. The sequence of major topics begins with background material and the tools of the trade (environmental epidemiology, environmental toxicology, environmental policy and regulation). The course then covers specific agents of environmental diseases (e.g., microbial agents, ionizing and non-ionizing radiation). Finally, applications and domains of environmental health are addressed (e.g., water and air quality, food safety, waste disposal, occupational health, and injuries). **(3)**

PHM 336 *Pharmacy Advocacy and Leadership.* This 3 credit elective course focuses on fostering the knowledge and skills necessary for creating a positive future in the profession of pharmacy. Students will explore advocacy and leadership at the individual and collective levels. Leadership theories will be discussed as a basis for supporting effective advocacy. Relevant issues to the practice of pharmacy such as scope of practice will be used to demonstrate how effective advocacy can impact the profession. Students in this elective will be involved in activities outside the classroom such as Pharmacy Legislative Day, NYS Pharmacy Conference, and legislative meetings. Collectively the class will work on a white paper that describes or supports pharmacy's role within the issue

chosen. This elective is for any student wishing to become an active member of the profession but is on sure how to become involved. **(3) Prerequisites: Doctor of Pharmacy Candidate.**

PHM 373 *Foundations of Diabetes Mellitus Care.* The Foundations of Diabetes Management elective course provides an effective, efficient, and flexible mechanism to assure that entry level students have a strong foundation in the principles of effective therapy and management of diabetes. This hybrid course consists of 45 hours of content (equivalent to 3 credit course) divided into 15 topic modules with each module consisting of 1 to 5 hours of content. All content will be delivered online through the University of Pittsburgh's DM Educate® website. The course will meet 6 times throughout the semester for various discussions and hands-on practice. **(3)**

Prerequisite: Doctor of Pharmacy Program P1 year.

PHM 429 *Advanced OTC.* The Advanced OTC course will guide the student pharmacist through an interactive approach to over the counter medications. Students will have the opportunity to take a more in depth look into specific topics while addressing topics not currently covered in the required course: The Pharmacist Role in Self Care. The design of this course is geared towards student pharmacists looking to pursue a career in community pharmacy. **(3) Prerequisites: PHM 329.**

PHM 441 *Community Medicine Management.* Student pharmacists will learn the necessary steps to implement medication therapy management (MTM) patient care programs in the ambulatory setting. Course activities include discussions, literature evaluation, and MTM scenarios to prepare students to develop, implement and assess patient care programs. Students will be eligible to earn the national APhA MTM certification following completion of this course and their APPE rotations. **(3) Prerequisites: PHM 225, PHM 329, NY State Intern Permit.**

PHM 459 *Drug Discovery and Development.* This course is a multi-disciplinary course that will deal with all components of drug discovery and development, from the bench to the bedside. This will include pharmacology, medicinal chemistry, molecular biology, biochemistry, immunology, formulation, delivery, pharmacodynamic, pharmacokinetic, regulatory affairs, clinical research, marketing, business development, sales, medical affairs and patent filing. The course will be presented by the instructor and experts and executives from various pharmaceutical and biotechnology companies (moderated by the instructor). **(3); Prerequisites: BIO 325, CHE 113 and concurrent BIO 411, 412, 421 or 422**

PHM 461 *Principles of Hematology/Oncology* is a 3-credit course with a focus on building upon principles and foundations of managing the advanced pharmacotherapy of a cancer patient. The material within the elective will

build upon itself with a review of the foundations and principles of chemotherapy, targeted therapies, and supportive care. The course will offer expanded discussion of the major forms of cancer amongst the United States population, with a focus on female cancers (breast/ovarian), male cancers (prostate/testicular), lung, colorectal, kidney, and pancreatic cancers. The course will also discuss several forms of hematologic malignancy with a focus on lymphomas, myelodysplastic syndromes, and acute and chronic leukemias. Selected guidelines from the National Comprehensive Cancer Network and American Society of Clinical Oncology will be utilized to discuss key therapeutic areas and for the application of recommendations within case work. Students will appreciate a full spectrum of care in oncology with this course as it will re-introduce/introduce material from the Oncology PTPM course with further expansion of additional malignancies and hematologic disorders as the semester progresses. Students will develop their critical-thinking, primary literature evaluation, and public speaking skills through participation within the course through case assignments, and an individual presentation on a selected hematology/oncology controversy or drug class discussion. **(3) Prerequisites: PTP 401; PTP 440; PTP 410; PSC 315; PSC 312.**

PHM 525 *Advanced Nephrology.* This course introduces topics that will enable students to have an in-depth understanding of contemporary issues in nephrology. It will enable them to participate in a nephrology APPE in an advanced and effective manner and will engender interest in a nephrology residency or fellowship. Students will participate in small group discussions on topical aspects of clinical nephrology, lead and participate in journal clubs with faculty, and be responsible as near-peer instructors for components of the Nephrology Patient Care elective. The Advanced Nephrology elective will be run for one 2-hour session each week to coincide with the Nephrology Patient Care elective. **(2) Prerequisite: PSL 302, PHM 329, PTP 525 B or better OR completion of clinical and translational research elective OR independent research elective in nephrology.**

PHM 535 *Cancer Screening, Prevention and Early Detection.* The clinical practice guidelines from the National Comprehensive Cancer Network for the screening, prevention and early detection of breast, cervical, prostate and colorectal cancers will be discussed in detail, with emphasis on the role of the health care professional. Cancer epidemiology, cost-effectiveness of cancer screening, complementary alternative medicine and lifestyle modifications, including smoking cessation and skin cancer prevention, also will be reviewed. Students will be expected to participate in clinical controversy discussions as assigned from the primary literature in a structured debate format. Seminar is not a prerequisite for the course, and primary literature evaluation activities will be tailored to the needs and background of students

enrolled in the course (both Pharm.D. and B.S. students are eligible to enroll). Each student debate team will choose a cancer screening/prevention/early detection topic of their interest to lead one of the assigned debates (approximately 50 percent of the course is interactive). One volunteer activity required as part of the course to increase public health awareness of cancer screening, prevention and early detection and encourage service learning. **(3); Pre-requisites: current P2 or P3 pharmacy or 4th year BS student status**

PHM 540 *Pediatric Pharmacotherapy*. Students enrolled in Pediatric Pharmacotherapy will receive an overview of common issues related to drug therapy in the infant and child patient and develop a level of understanding appropriate for that of a general pharmacist practitioner. The infant and child patient is often one that poses unique challenges to the pharmacist owing to rapid and substantive changes in physiology, behavior, communication, and understanding. These changes often necessitate flexibility and resourcefulness on the part of the pharmacist to assess his or her patient and arrive at sound drug therapy decisions that are specific for the infant or child. Aside from the uniqueness of the infant or child patient, these decisions are often complicated by a lack of adequate evidence-based medicine, difficulty in communications with the parent or caregiver, and societal misunderstandings and beliefs regarding the healthcare of children. The course objectives will be met by way of a student-centered approach utilizing a mixture of problem- and team-based learning. By way of a longitudinal, virtual patient management model, the Instructor will introduce topics related to the health care of infants and children. Students will be responsible to a large extent for the new knowledge acquired during the course. **(3); Pre-requisites: current P3 pharmacy student status**

PHM 545 *Interprofessional Health Care Issues*. Interprofessional Health Care Issues is a course offered by the faculty and to the students of ACPHS and other local professional schools, such as Albany Medical College, Sage College Department of Nursing, Albany Law School, or others. The AACN Council of Faculties Interprofessional Education [IPE] Task Force defines interprofessional education as follows: "Interprofessional education involves educators and learners from 2 or more health professions and their foundational disciplines who jointly create and foster a collaborative learning environment. The goal of these efforts is to develop knowledge, skills, and attitudes that result in interprofessional team behaviors and competence (1)." This course is designed to facilitate interactive group discussion about health care issues, using nonfiction literary works or themes collections of lay media and medical literature as a background for understanding the role of various professions, opportunities for collaboration, lessons from history that may be relevant to contemporary practice. The health care issue of focus may change each semester.

Examples of health care issues may include historical issues of public health importance such as infection (Spanish influenza; H1N1; HIV, etc); immunization; natural disasters and emergency preparedness (Hurricane Katrina; 911 Attacks and sequelae; etc). A history of the evolution of the professions is included in the series to provide context for the public health issue at hand. This course is offered to P1 - P3 students by invitation of the course coordinators. (1) Buring SM, Bhushan A, Broeseker A, et al. Interprofessional education: definitions, student competencies, and guidelines for implementation. *Amer J Pharm Ed* 2009; 73 (4) Article 59. **(1) Prerequisites: Doctor of Pharmacy Candidate.**

PHM 546 *Advanced Topics in Infectious Disease*. A course focused on evaluation of contemporary and controversial issues in the pharmacotherapy of clinical infectious diseases. This elective offers material that builds on the foundations of infectious diseases pharmacotherapy offered through the PTP&M-ID course. The course exposes students to the tools necessary to evaluate antimicrobial agents from the late preclinical pharmacokinetic stages through Phase 1, 2a, 2b, 3, and 4 of clinical research (i.e. bench to bedside) as defined and regulated by the U.S. Food and Drug Administration. Advanced topics in infectious diseases examines: 1) evaluation of key antimicrobial pathogens 2) emergence and mechanisms of antimicrobial resistance among; 3) antimicrobial pharmacokinetics/pharmacodynamics; 4) antimicrobial treatment considerations in special populations; and 5) Drug-drug interactions. Illustrative examples of key clinical treatment guidelines from the Infectious Diseases Society of America are utilized to improve understanding of the opportunities and barriers to delivery of optimal healthcare. Students will develop their critical-thinking, primary literature evaluation, and public speaking skills through the participation in pro and con debates on a controversial issue in the pharmacotherapy of clinical infectious diseases. A list of controversial topics in infectious diseases pharmacotherapy will be provided to the students during the first week of the course. **(3) Prerequisites: PTPM Infectious Disease.**

PHM 551 *Pain Management Pharmacotherapy*. This is an advanced therapeutics course focusing on acute, chronic, and palliative care pain management strategies in the ambulatory care and critical care settings including cancer and non-cancer pain. Included in this introductory course are evidence-based approaches to pain management programs; optimizing chronic pain management; palliative care for the terminally ill drug addict; interface between pain and drug abuse and the evolution of strategies to optimize pain management while minimizing drug abuse; pharmacokinetic opioid monitoring fibromyalgia therapy; chronic nonmalignant pain in primary care; pain management in the hospitalized patient and peripheral neuropathy. Limited time will be spent on Rheumatoid Disease and DMARDs. Class activities will include lecture

format, discussion groups, and clinical case deliberations in the medical settings and in legal disputes. Students will be required to review and discuss pain management strategies and will understand pain types, syndromes, the bio-psychosocial model of pain, and make a distinction between chronic and acute pain, the pathophysiology of pain (nociceptive, neuropathic), general overview of diagnostic tools, utilization of imaging reports, recognition of the disconnect between imaging and symptomatology, general overview of treatment options to be considered (noninvasive, interventional, medication management), therapeutics of opioid; geriatric considerations and neurology. **(3) Prerequisites: P1 and P2 PTPM courses; PSC 341; and PSC 342**

PHM 590 Principles of Pharmacogenomics. This course will provide a wide array of topics in the field pharmacogenomics and explore the growing importance of pharmacogenomics in the delivery and diagnosis pertinent to personalized medicine and therapeutic management. Students will be introduced to genomic concepts in genetic testing, future drug design, study interpretation and clinical therapeutics decision making. The course will be divided into two sections. The first part of the course will examine the application of pharmacogenomics in medicine and drug design. The second part of the course, the student will have the opportunity to apply pharmacogenomics concepts and/or decision making. This will be implemented via a patient case study developed by the student or a written paper illustrating pharmacogenomics influence in medicine. **(2) Prerequisites: Doctor of Pharmacy Program P1 year.**

PHM 641 G Clinical and Translational Research. This course will introduce the clinical and translational research paradigm. Translational research includes two areas of translation. One is the process of applying discoveries made in the laboratory (e.g., in test tubes or in animals) to the development of clinical studies using human subjects. The second area of translation refers to research intended to discover how to best apply the clinical findings to the community. This class will introduce research techniques to investigate a hypothesis within the entire continuum of clinical and translational research from "bench to bedside to community". Students will engage in active discussions regarding research methodology, will participate in hands on work in the laboratory and will be required to prepare a scientific abstract.

PHM 911 Orientation to Advanced Pharmacy Practice Experiences. This course provides students with preparation to select and satisfactorily complete their advanced pharmacy practice experiences. Students will meet experiential education personnel and will prepare a personal biosketch, resume, and placement profile. Students will review the APPE Rotation Manual, which includes the calendar; required and elective module requirements; rotation assignment procedure; goals and

objectives for advanced pharmacy practice experiences; procedures for assignment to extramural and special arrangement rotations; student guidelines; midpoint and final evaluation procedures; academic regulations; electronic resources on the Web site and portfolios. Students will learn about different practice environments, including community; institutional; specialty practices in ambulatory care or inpatient settings, managed care and administration, that they may consider as potential APPE options. **(0)**

PHY 212 College Physics I: This course is the first part of a two-semester physics sequence. Basic principles underlying physical phenomena will be studied. These principles form a foundation of our understanding of chemistry, biology and pharmaceutical sciences. Emphasis will be on solving qualitative and quantitative problems using a variety of mathematical methods. The topics will include one- and two-dimensional kinematics; Newtonian dynamics; work and energy; linear momentum; physics of fluids and solids; oscillations and waves; and applied nuclear physics. The laboratory portion of the course complements its theoretical component and will in particular familiarize students with modern experimental techniques and skills including computerized data collection. **(4); Prerequisite: MAT 115, MAT 121; Lecture and Laboratory**

PHY 222 College Physics II: This course is the second part of a two-semester physics sequence and a continuation of Physics I. Basic principles underlying physical phenomena will be studied. These principles form a foundation of our understanding of chemistry, biology and pharmaceutical sciences. Emphasis will be on solving qualitative and quantitative problems using a variety of mathematical methods. The topics will include foundations of thermodynamics and kinetic theory; electricity and magnetism; electromagnetic waves and elements of physical and geometrical optics. The laboratory portion of the course complements its theoretical component and will, in particular, familiarize students with modern experimental techniques and skills including computerized data collection. **(4); Prerequisite: PHY 212; Lecture and Laboratory**

PHY 245 Physics for Life Sciences: This course is a one-semester algebra-trigonometry-based introductory physics course. Fundamental principles underlying physical phenomena will be studied. These principles form a foundation of our understanding of chemistry, biology and pharmaceutical sciences. Emphasis will be on solving qualitative and quantitative problems using a variety of basic mathematical methods. The topics will include kinematic description of motion; Newtonian dynamics; the concepts of work and energy; energy conservation law; mechanics of fluids; introduction to nuclear physics; heat and temperature, charges and Coulomb's Law; introduction to electric circuits; and geometrical and

physical optics. The laboratory portion of the course complements its theoretical component and, in particular, will familiarize students with modern experimental techniques and skills including computerized data collection. **(4); Prerequisite:** MAT 111; Lecture and Laboratory

PHY 316 *Physics in Nuclear Medicine and Pharmacy:* Nuclear medicine uses the nuclear properties of matter for medical purposes. As a part of the diagnostic procedure, radionuclides (radiopharmaceuticals) are administered and the radiation emitted is used to form images. These images reflect biological processes that take place at the cellular and subcellular level. Nuclear pharmacy is a specialty area of pharmacy practice dedicated to the compounding and dispensing of radionuclides for use in nuclear medicine procedures. This course is a one-semester introductory level course that discusses fundamental principles underlying physical phenomena related to the fields of nuclear medicine and nuclear pharmacy. The topics will include basic atomic and nuclear physics, radioactivity and its decay, methodology of radiopharmaceutical production and instrumentation used for production of radionuclides, radiation detectors, basic ideas of positron emission tomography (PET), radiation dosimetry, radiation protection and safety and fundamentals of health physics. We will discuss examples of clinical applications of nuclear medicine/pharmacy for different systems and diseases. The course emphasizes critical thinking and problem solving skills, and students are expected to become proficient at manipulating the quantities and units used in the radiation sciences. The course will include field trips to local nuclear pharmacy facilities and guest lectures given by local nuclear pharmacists. **(3); Prerequisite:** PHY 222 or PHY 245

PSC 102 *Seminar in Health Professions:* This seminar course will provide an overview of health and basic sciences based professions. Students will be required to attend seminar presentations given during class time and outside of class to enhance their knowledge of various career pathways. Presentation topics typically include academic research, medical education (MD, DO), physician assistant studies, public health, cytotechnology/clinical laboratory sciences and industrial/pharmaceutical research. As part of this course, students will prepare a resume' including a detailed outline of their plans to enhance their resume' over their time at ACPHS. Students will also prepare a brief oral presentation comparing the advantages and disadvantages of two career options of interest to the student.

PSC 231 *Real World Health Care:* This course will discuss the role of healthcare systems in improving human health and compare the US healthcare system to that of various other healthcare systems of the world. Topics will include disease prevention vs. treatment, comparison of the US healthcare system to those of other developed countries

and the current status of health care in developing countries. Discussions will also focus on the availability of healthcare for people of varying economic and social classes, ethnicity, and with different diseases/ailments. Class time will be divided between online discussions, student based presentations and seminar style discussions. The course is designed to be relevant to students who are considering a career in medicine. **(3); Prerequisite:** none

PSC 251 *Pharmaceutical Sciences Journal Club:* This course will enhance the ability of students to critically evaluate scientific articles published in juried scientific journals. Articles will be selected from current scientific literature in a variety of disciplines in the pharmaceutical sciences, including drug delivery, drug development, medicinal chemistry, molecular biology, pharmacogenomics, pharmacology, physiology, biochemistry and pharmaceuticals. Each student will present at least two articles per semester. All participants are expected to read and critique the articles. **(1); Prerequisites:** Permission of the instructor

PSC 253 *Scientific Communication:* This course emphasizes writing, revision, and the delivery of scientific presentations. Designed to prepare students for the thesis research track, a wide variety of communication formats are explored including standard media outlets, scientific journals, seminars, and grant proposals. The essential elements of successful oral presentation and writing in targeted formats are developed through group discussion, critique, and practice. Emphasis is placed on developing a research proposal and an outline for a research seminar. With regard to writing, classic papers are contrasted and discussed in the context of format, style, and technique inherent to effective scientific writing. Grant writing and peer evaluation are additionally explored through real-life examples. Students apply these learned skills by crafting a research proposal, which ideally will serve as a foundation for the research performed in PSC 463/464. Concurrently, oral communication skills are developed through generation of a seminar presentation based on the student's research proposal. At the conclusion of the course students will present their work through either a poster or seminar session. **(3)**

PSC 261 *Topics in Pathophysiology and Medicine:* Students will build on their knowledge of various topics in pathophysiology and medicine by reading, discussing, analyzing and interpreting data from the scientific literature. Students are expected to be active participants in presenting, discussing, critiquing and interpreting the data throughout the semester. This course will begin with discussions and reading focused on background information and build to student led evaluation of primary journal articles. **(3); Prerequisites:** BIO 111 and 121

PSC 311 *Biochemistry:* Biochemistry provides an introduction to important biomolecules and the complex

structures and cellular pathways in which these molecules are involved. The first section of the course focuses on proteins with emphasis on enzyme structure and function, kinetics, and reaction mechanisms. Following an examination of simple and complex carbohydrates and lipids, the remainder of the course focuses on metabolic pathways that are responsible for cellular ATP production (glycolysis, citric acid cycle, and electron transport), fatty acid synthesis and breakdown, cholesterol biosynthesis, and pentose phosphate metabolism. The metabolic intermediates and signal transduction pathways involved in the regulation of key rate limiting enzymes for each pathway provide a focus for understanding how this regulation facilitates functional integration of these metabolic pathways in a number of different cell types. **(3); Prerequisite:** CHE 221

PSC 312 *Molecular Biology:* An analysis of the regulatory pathways controlling cell replication, gene expression, and protein synthesis with a central focus of understanding how such knowledge is foundational to therapeutic application and development. Cancer cells, retroviruses, and bacteria serve as thematic models to demonstrate how the principles embodied in these studies translate into functional applications. Problem solving and data analysis play a central role in reinforcing didactic material and fostering student intellectual development. In addition to canonical topics, specialized subjects such as dideoxynucleotide therapeutics, RNAi, viral vectors in gene therapy, stem cells, and cloning are discussed to illustrate both the practical—and potential—applications of this ever-evolving field. **(3)**
Prerequisite: PSC 311

PSC 315 *Immunology:* This course is devoted to the study of host defense and the immune system. It examines the cells and organs of the system. It also explores the complex mechanism of cell-cell cooperation necessary to produce immune responses. The role of antibodies, T cells and macrophages in host defense and diseases are thoroughly explored. The role of the immune system in hypersensitivity, autoimmunity and transplantation is carefully examined. In addition, methods for modifying immune responses through drugs and vaccines are discussed. **(3)**
Prerequisites: BIO 111, BIO 121 and PSC 311 or concurrent enrollment in PSC 311.

PSC 316 *Advanced Immunology:* This course will further explore concepts introduced in Immunology that did not receive extensive discussion in the basic course. Topics of specific interest to the students in the class will be covered and may include: the molecular biology of generation of diversity of antibodies, immunogenetics of disease states and transplantation, modification of immune responses including tolerance induction and immunosuppressive drugs and psychoneuroimmunology with a discussion of the endocrine-neuro-immune axis. **(3)**

Prerequisite: PSC 315 or permission of the instructor

PSC 317 *Advanced Genetics:* With an emphasis on human populations, this course serves to introduce students to the many specialized branches of the science of genetics. Although classic subjects including Mendelian genetics, pedigree analyses, and population genetics are covered, diverse topics—ranging from chromosome evolution to developmental programs to eugenics—serve to highlight the diversity inherent in the field. Although based on core lecture series, supplemental readings from authors such as Stephen Jay Gould, problem sets, and integrated recitations facilitate academic growth in several essential areas. A centerpiece of the genetics course involves the completion of a semester-long project that challenges students to identify a gene based on a DNA sequence fragment, the role this gene plays in inherited disorders, and the current state of research into this genetic disease. This project culminates in a review-style paper, which, in addition to facilitating writing skills, affords students the opportunity to develop a level of expertise and understanding for the impact that congenital disorders have on individuals—and the drive towards developing treatments. **(3); Prerequisite:** BIO 121.

PSC 321 *Physiology/Pathophysiology I:* This course sequence will focus on normal physiological principles of homeostatic regulation of the human body. Important anatomical structures, pathologies and disease states will be presented to support underlying physiological regulation. Physiology/Pathophysiology I will include in-depth discussions of the physiology and pathophysiology of cell structure, electrophysiology, the nervous systems and the cardiovascular system. **(4); Prerequisites:** BIO 102 or BIO 121

PSC 322 *Physiology/Pathophysiology II:* This course sequence will focus on normal physiological principles of homeostatic regulation of the human body. Important anatomical structures, pathologies and disease states will be presented to support underlying physiological regulation. Physiology/Pathophysiology II will include in-depth discussions covering physiology and pathophysiology of the respiratory system, renal system, endocrine systems and gastrointestinal/hepatic systems. **(4); Prerequisites:** BIO 102 or BIO 121

PSC 341 *Pharmaceutics I:* This course studies the physicochemical principles of drug delivery and pharmaceutical dosage forms. It introduces the physical, chemical and mathematical principles, theories, terminology, calculations and methodologies of physical pharmacy, dosage forms and drug delivery systems. The topics include properties of solutions, solution dosage forms, equilibrium and kinetics in solutions, properties of dispersions, dispersion dosage forms, preformulation, quality standards, new drug development and the drug approval process. **(3); Prerequisites:** BIO 111, BIO 121,

CHE 111, CHE 121, CHE 211, CHE 221, PSC 311, MAT 111, PHY 212 and PHY 222 or permission of instructor

PSC 342 *Pharmaceutics II*: This course studies pharmaceutical dosage forms and drug delivery systems, the foundations of physical pharmacy and biopharmaceutics. It includes the application of physical, chemical, mathematical and biological principles to the design of dosage forms and drug delivery systems, and introduces commonly used pharmaceutical ingredients and manufacture methods. Topics include principles of biopharmaceutics, topical and transdermal drug delivery, solid dosage forms and oral drug delivery systems, sterile products, nasal and pulmonary drug delivery, specialty products, advanced drug delivery systems and novel drug delivery strategies. **(3); Prerequisite:** PSC 341 or permission of instructor

PSC 351 *Alternative and Complementary Medicine*: This course will examine complementary and integrative medicine practiced in the United States. The course will examine the underlying cultural assumptions and world views of allopathic and complementary medical systems and introduce students to both mechanistic and holistic belief frameworks. Systems such as homeopathy, chiropractic, osteopathy and Western herbalism will be discussed, as well as techniques or approaches including touch therapies, aromatherapy and light therapy. Systems that stress integration of mechanistic with personalistic beliefs will also be discussed, including naturopathic, traditional Chinese medicine and ayurvedic practices. The role of the mind in wellness and the concept of mind/body medicine will be integrated throughout the course. In presentations, students will be required to investigate systems or techniques within the integrative medical spectrum which interest them. **(3); Prerequisites:** BIO 111 and 121

PSC 361 *Pharmaceutical Analytical Techniques I*: This course serves as an introduction to some of the major techniques used for development, characterization, and evaluation of delivery systems and drug products, as well as qualitative and quantitative analysis of the active compounds. The analytical techniques studied include spectrophotometry, chromatography, nuclear magnetic resonance and mass spectrometry. Other techniques used for assessment of particle size, drug *in vitro* release, and determination of formulation characteristics and stability are also studied. The laboratory portion focuses on the application of such methodologies and operation of related instruments to answer specific aims of a new research project proposed each semester. **(3); Prerequisite:** CHE 122

PSC 362 *Pharmaceutical Analytical Techniques II*: The course has been designed to be a practical introduction to essential techniques in cell and molecular biology. The semester is broken up into several modules whose

experimental series are designed to achieve a specific goal related to the study of tumor suppressor protein function and regulation. The experiments are novel with no *a priori* knowledge of the results, providing a framework for the development of practical research skills including troubleshooting, experimental design, and data analysis. The core techniques to be learned include: electrophoresis of DNA and proteins, protein quantitation, Western blotting, cell transfection methods, restriction enzyme digest, plasmid DNA isolation, PCR mutagenesis, gene expression assays, and immunofluorescent cell staining. Laboratory notebooks, quizzes, homework assignments, and manuscript-style results presentations factor into grading, although class participation/performance over the course of the semester are substantially weighed. **(3); Prerequisite:** CHE 122

PSC 410 *BSPS Thesis I*: This course is required for all BSPS students registered for the Thesis Option. Participation in Thesis I requires completing an accepted application to the BSPS Thesis Option including the approval of the Director of the BSPS Program and the Pharmaceutical Sciences Department Chair. Students will work with an identified faculty mentor to develop a thesis proposal which will provide appropriate background, hypothesis, specific aims and methods for the thesis work to be conducted as part of BSPS Thesis Research I. The written thesis proposal will be in the format of an NIH grant application. The thesis proposal must be approved by the faculty mentor. Student will prepare and present a seminar of their thesis proposal. This course can be taken prior to or concurrently with BSPS Thesis Research I. The faculty mentor will assign the BSPS Thesis I grade. **(3)**

PSC 411 *BSPS Thesis 2*: This course is required for all BSPS students registered for the Thesis Option. This course must be taken concurrently with BSPS Thesis Research II and students must have completed BSPS Thesis I and BSPS Thesis Research I. Students will be responsible for writing a senior thesis based on the research data generated in Thesis Research I and 2 as outlined in the thesis proposal produced in Thesis I. In addition, students will prepare a seminar that describes the research project, results obtained and the conclusions that can be drawn from the research. The seminar will be presented to the ACPHS community. The written thesis will be submitted to the thesis mentor prior to the seminar presentation and revised according to the thesis mentor's critique. If the seminar and the revised thesis are found to be acceptable by the thesis mentor, the thesis mentor will approve the thesis. The mentor will assign the BSPS Thesis II grade. **(3) Prerequisite:** PSC 410 and PSC 412

PSC 412 *BSPS Thesis Research I*: BSPS Thesis Research I is the foundational course for students pursuing the Thesis Option within the BSPS program. Under guidance of the faculty mentor and as outlined in the thesis proposal produced in BSPS Thesis I, students will develop a novel

research hypothesis, design and execute experiments to test the hypothesis, and accumulate and analyze data. The foundational work of BSPS Thesis Research I is expanded upon, refined, and brought to conclusion in BSPS Thesis Research II. **(3)**

PSC 413 *BSPS Thesis Research II*: This course is a continuation of work begun in BSPS Thesis Research I. Students will continue to refine their laboratory skills, address problems identified in previous studies, and pursue new avenues of research opened up by their experiments. At the conclusion of BSPS Thesis Research II, students will present their findings in seminar and detail their findings in writing as part of the course BSPS Thesis II. **(3); Prerequisite:** PSC 412

PSC 421 *BSPS Thesis Seminar*: Students pursuing the thesis option will register for BSPS Thesis Seminar concurrently with BSPS Thesis 2. Once the thesis research is completed, the research results will be summarized in written form in the style of a manuscript that can be submitted for publication. The student will also prepare and present a seminar that describes the complete thesis research project, from the background research that led to the formation of the research hypothesis, to the discussion of the results of the studies. The seminar will be presented in a public forum and should represent the culmination of the thesis project. **(1)**

PSC 431 *Foundations of Pharmaceutical Sciences*: This introductory course is required for BS Pharmaceutical Sciences students. The course reviews the foundational topics in Pharmacology/Medicinal Chemistry, setting the stage for subsequent courses in Pharmacology/Medicinal Chemistry. Topics covered include principles of receptor and ligand interactions, dose response curves, pharmacokinetics (absorption, distribution, and elimination of drugs), pharmacodynamics (drug concentration and effect), biotransformation of drugs, enzyme polymorphisms, and factors affecting drug action. **(2); Prerequisite:** PSC 311, PSC 312, PSC 321 and PSC 322

PSC 432 *Pharmacology I*: This course covers major drug classes, including antibiotics, anti-virals, anti-neoplastics, and drugs which act within the gastrointestinal tract. The mechanism of action, adverse effects, structure activity relationships, and pharmacokinetics of model compounds from each drug class will be considered. **(2); Prerequisite:** PSC 431

PSC 433 *Pharmacology II*: This course reviews drugs that affect the nervous and endocrine systems. Topics include autonomic drugs, general anesthetics, sedative-hypnotics, antidepressants, antipsychotics, anti-seizure drugs, analgesics, and anti-Parkinson agents, and drugs used to treat endocrine disorders, including calcium disorders, hypothalamus, pituitary, thyroid problems, diabetes and hypoglycemia as well as anti-androgens, anti-estrogens

and progestins. The mechanism of action, adverse effects, structure activity relationships, and pharmacokinetics of each drug class will be considered. **(3); Prerequisite:** PSC 431

PSC 434 *Pharmacology III*: This course covers cardiovascular anti-inflammatory and anti-asthmatic drugs. Specific topics to be covered include antihypertensive, diuretic, anti-dyslipidemic and anti-arrhythmic drugs, NSAIDs, antihistamines, and anti-asthmatic drugs. The mechanism of action, adverse effects, structure activity relationships, and pharmacokinetics of each drug class will be considered. **(3); Prerequisite:** PSC 431

PSC 441 *Pharmacokinetics*: PSC 441 presents concepts and mathematical techniques used to describe the time course of drug disposition in biological systems using compartmental and non-compartmental analysis. The course also presents biopharmaceutical and pharmacokinetic principles used in the selection, dosing, monitoring and evaluation of drug therapy. These principles will be applied to evaluate drug literature and develop drug dosage regimens of selected classes of drugs for individual patients. **(3); Prerequisites:** PSC 341 and PSC 342

PSC 445 *Drug Discovery and Development*: This course multi-disciplinary course will cover all components of drug discovery and development, from the bench to the bedside, including pharmacology, medicinal chemistry, molecular biology, biochemistry, immunology, formulation, delivery, pharmacokinetics, regulatory affairs, clinical research, marketing, business development, sales, medical affairs and patent filing. The course will be presented by the instructor and by experts from various pharmaceutical and biotechnology companies (moderated by the instructor). **(3); Prerequisites:** PSC 311, PSC 312, and PSC 431 or PTP 401 or concurrent enrollment in PSC 431 or PTP 401.

PSC 451 *Scientific Literature Evaluation (SLE)*: This course will teach students how to evaluate scientific literature and prepare a seminar. The course will be divided into sections of approximately 24 students and each section will focus on a specific topic or body of knowledge. Students will have multiple opportunities to give short presentations that focus on data analysis and literature evaluation. Students will develop evaluation and presentation skills throughout the course, initially by presenting sections of scientific articles selected by faculty and, subsequently, by choosing articles, themselves, for presentation. Throughout the course, student's continual and active engagement in discussions focused on critical analysis of the scientific literature will build confidence and comfort in thinking critically about the scientific literature and promote evidence based decision making. Discussions will include appropriateness of sample populations selected, comparison groups used,

medical ethics, statistical significance, clinical significance and evidenced based recommendations. This course will thus provide students with multiple opportunities to present and discuss data and to present a scientific seminar. **(1); Prerequisite:** PHD 410

PSC 452 *Pharmaceutical Sciences Journal Club:* This course is designed to enhance the ability of students to critically evaluate scientific articles published in juried scientific journals. Articles will be selected from current scientific literature in a variety of disciplines in the pharmaceutical sciences, including drug delivery, drug development, medicinal chemistry, molecular biology, pharmacogenomics, pharmacology, physiology, biochemistry and pharmaceuticals. All participants will read and critique the articles. Each student will present at least two articles per semester. **(1); Prerequisites:** PSC 311, PSC 312, PSC 321, PSC 322 and PSC 431 or PTP 401 or concurrent enrollment in PSC 431 or PTP 401 or permission of the instructor

PSC 454 *Research Seminar:* The course represents the culmination of thesis-track research within the BSPS curriculum. In conjunction with their faculty mentor, students prepare a seminar talk based on their research accomplishments, which is presented during a seminar session open to the ACPHS community at the conclusion of the semester. This is a pass/fail course. **(1); Prerequisites:** PSC 361, PSC 362, PSC 463 and concurrent enrollment in PSC 464

PSC 463 *Independent Research I:* Students will pursue research with a faculty mentor in an area consistent with their career goals and the faculty member's research interests. In conjunction with Scientific Communication, students will perform an in-depth literature search and develop a testable hypothesis. The student and mentor will then work together to develop a research plan that will test the hypothesis. The student will learn the necessary techniques, conduct experiments and analyze data appropriate to the research goals under the guidance of the faculty mentor. Work on the research project will continue in Independent Research II. **(3); Prerequisite:** PSC 361, PSC 362 and concurrent enrollment in PSC 253

PSC 464 *Independent Research II:* Students will continue working under the supervision of their faculty mentor on the research project developed as part of Independent Research I. This will likely include continued learning of necessary techniques, conducting experiments and analyzing data to further test the hypothesis. Results of the research conducted in Independent Research I and II will be presented in Research Seminar. **(3); Prerequisite:** PSC 463 and concurrent enrollment in PSC 454

PSC 631 G *Foundations of Pharmaceutical Sciences:* This introductory course is required for all Pharmaceutical Sciences M.S. graduate students. The course reviews the

foundational topics in pharmacology and medicinal chemistry, setting the stage for subsequent courses in the Pharmacology and Pharmaceutics tracks. Topics covered include principles of receptor and ligand interactions, dose response curves, pharmacokinetics (absorption, distribution, and elimination of drugs), pharmacodynamics (drug concentration and effect), biotransformation of drugs and factors affecting drug action. **(2)**

PSC 632 G *Pharmacology I:* This introductory course is required for all Pharmaceutical Sciences graduate students (Pharmacology Track). The course covers major drug classes, including antibiotics, anti-virals, anti-neoplastics, and drugs which act within the gastrointestinal tract. The mechanism of action, adverse effects, structure activity relationships, and pharmacokinetics of model compounds from each drug class will be considered. **(2); Prerequisite:** PSC 631

PSC 633 G *Pharmacology II:* This introductory course is required for all Pharmaceutical Sciences M.S. graduate students (Pharmacology Track). The course covers autonomic drugs, CNS drugs, including anesthetics, sedative hypnotics, antidepressants, antipsychotics, anti-seizure drugs, analgesics, and anti-Parkinson agents, and drugs used to treat endocrine disorders, including calcium disorders, hypothalamus, pituitary, and thyroid problems, anti-androgens, anti-estrogens and progestins, and drugs used to treat diabetes and hypoglycemia. The mechanism of action, adverse effects, structure activity relationships, and pharmacokinetics of each drug class will be considered. **(3); Prerequisite:** PSC 631

PSC 634 G *Pharmacology III:* This introductory course is required for all Pharmaceutical Sciences M.S. graduate students (Pharmacology Track). The course covers cardiovascular drugs, including antihypertensives, diuretics, anti-dyslipidemics and anti-arrhythmics and anti-inflammatory drugs, such as NSAIDs, antihistamines, and anti-asthmatic drugs. The mechanism of action, adverse effects, structure activity relationships, and pharmacokinetics of each drug class will be considered. **(3); Prerequisite:** PSC 631

PSC 641 G *Advanced Pharmaceutics I (Physical Pharmacy & Biopharmaceutics):* This course is required for all Pharmaceutical sciences graduate students (Pharmaceutics track) and examines the physical pharmacy and biopharmaceutics, which focus on the physicochemical and biological factors that impact drug delivery and formulation design. These principles and theories are the foundations for drug candidate selection, pre-formulation, formulation design, drug absorption and transport study, drug delivery system design and targeted drug delivery. **(3); Prerequisite:** PSC 631

PSC 642 G *Advanced Pharmaceutics II (Formulation Design and Drug Delivery):* This course is required for all

Pharmaceutical Sciences graduate students (Pharmaceutics Track). This course applies the physical, chemical and biopharmaceutics principles to study formulation design strategies and drug delivery methods for drug product development. The topics of drug products are organized by solid, semi solid and liquid dosage forms. Drug delivery systems utilizing special routes of administrations, including transdermal delivery, pulmonary and nasal drug delivery, novel drug delivery systems, and targeted delivery are also discussed. **(3); Prerequisites:** PSC 631 and PSC 641 or permission of instructor

PSC 651 G *Pharmaceutical Sciences Journal Club:* This course, which is required for all Pharmaceutical Sciences graduate students, is designed to enhance the ability of graduate students to critically evaluate scientific articles published in juried scientific journals. Articles will be selected from current scientific literature in a variety of disciplines in the pharmaceutical sciences, including drug delivery, drug development, medicinal chemistry, molecular biology, pharmacogenomics, pharmacology, physiology, biochemistry and pharmaceutics. All participants will read and critique the articles. Each student will present at least two articles per semester. **(1)**

PSC 661 G *Research Rotation:* This course is required for all Pharmaceutical Sciences (Thesis Option) graduate students. Students will complete a one semester laboratory rotation in order to facilitate the selection of a thesis research advisor. Students will select a potential mentor based on interests and availability of openings in any given lab. Assignments, based on student preferences, will be made by the Director of the Pharmaceutical Sciences graduate program. Students are expected to spend a minimum of 10 hours per week on laboratory research during the rotation. Students will complete a rotation through a minimum of 1 lab and a maximum of 2 labs during the semester. They are to meet with the faculty advisor at least one hour per week for basic introduction to laboratory principles and practices, and to discuss their research. Students are required to complete reading assignments as directed by the faculty advisor and write a report of the research data and present a ten minute talk summarizing their research at the end of the rotation. **(2)**

PSC 671 G *Ethics in Research:* This course is required for all Pharmaceutical Sciences graduate students and includes a discussion format based on ethical issues involved in the research process. Students will have focused reading on the ethical issues involved in research and then will apply the readings to case studies during discussion. Topics covered will include, but are not limited to: Morality and research ethics, ethical issues before research committees, ethical issues involving human and animal subjects, reporting of research and conflict of interest. **(1)**

PSC 672 G *Experimental Design and Data Analysis:* This course is required for all Pharmaceutical Sciences graduate students and provides students with a basic knowledge of experimental design and biostatistics. Students will learn how to design experiments and analyze the results. The course will cover single factor experiments, multiple factors, full factorial and fractional factorial designs and screening designs, the fundamentals of hypothesis testing and relevant biostatistics. **(2)**

PSC 732 G *Cardiovascular Pharmacology:* This course is an elective for all Pharmaceutical Sciences graduate students (Pharmacology Track) and provides an in depth review of cardiovascular pathophysiology and pharmacology. The course reviews current concepts on the molecular mechanisms of cardiovascular function and the mechanism of action of drugs used to treat cardiovascular diseases. **(2); Prerequisite:** PSC 634 or permission of instructor

PSC 733 G *Pharmacology and Molecular Genetics of Cancer:* This is an elective course for all Pharmaceutical Sciences M.S. graduate students (Pharmacology Track) and includes a study of the molecular-genetic mechanisms underlying tumorigenesis, including the role of oncogenes, tumor suppressors, and pathogens (viruses and bacteria). Genomic approaches to the study of both hereditary cancers and somatic mutations will be explored. The pharmacology of current cancer therapeutics and the rational design of novel anti-cancer drugs will be discussed throughout the course. **(3); Prerequisites:** PSC 632

PSC 735 G *Cell Signal Transduction:* This course consists of lectures and manuscript presentation of articles that underscore well-established intracellular signal pathways relevant to topics in pharmacology. The primary goal of this course is to establish understanding of; (1) critical well-established mechanisms of intracellular signaling, (2) critical manuscripts that formed the foundation of cell signaling, and (3) rationale for drug targeting of the cell-signaling components. Each topic will be first addressed with lecture which is followed by student presentation of break-through papers in the topic. The topics, manuscripts and order of student presentation will be chosen by the faculty member. **(2)**

PSC 736 G *Immunopharmacology:* Immunopharmacology will explore the immune system from a pharmacological viewpoint. After a short review of the basic concepts of immunity, the course will closely examine the role of antibodies in immunodiagnosis, and immunotherapeutics. The immunotherapeutics portion of the course will examine the roles of vaccines and antibodies in modifying immune responses as well as drugs which modify immune responses in allergy and asthma, cancer therapies, immunosuppressives, biologics, immunotoxicology and dietary and plant immunomodulators. **(3); Prerequisites:** PSC 634, Immunology or permission of instructor

PSC 737 G Immune-Brain Communication: This course deals with the mechanisms by which the peripheral immune system and the brain exchange information to mount effective strategies to cope with systemic inflammation and sepsis. The course will closely examine the mechanisms by which immune signals generated in the periphery act upon the brain to produce host-defense responses such as fever, behavioral depression (sleep and anorexia), and hyperalgesia. The course will also examine how the brain, in turn, acts upon the immune system to modulate the intensity of the underlying inflammatory response. The interdisciplinary nature of this course will provide students with a critical understanding of the multifaceted connections between the immune system and the brain. **(3); Prerequisites:** PSC 631, PSC 632, PSC 633, PSC 634 and PSC 674 or permission of instructor

PSC 738 G Environmental Health: Toxicology, Regulation and Economics: This course is designed to provide students with an introduction to and overview of the key areas of environmental health. Using the perspective of the population and community, the course will cover factors associated with the development of environmental health problems. Students will gain an understanding of the interaction of individuals, communities, and economic activity with the environment, the potential impact on health of environmental agents, and specific applications of concepts of environmental health. The course will cover principles derived from core environmental health. The sequence of major topics begins with background material and the tools of the trade (environmental epidemiology, environmental toxicology, environmental policy and regulation). The course then covers specific agents of environmental diseases (e.g., microbial agents, ionizing and non-ionizing radiation). Finally, applications and domains of environmental health are addressed (e.g., water and air quality, food safety, waste disposal, occupational health, and injuries). **(3)**

PSC 741 G Pharmacokinetic Modeling: This pharmacokinetics course is an elective course for Pharmaceutical Sciences graduate students (Pharmaceutics Track). The course presents concepts and mathematical techniques for description of the time course of drug disposition in biological systems. The course also presents biopharmaceutical and pharmacokinetic principles used in the selection, dosing, monitoring and evaluation of drug therapy. At the end of the course the student should be able to find, obtain, understand, analyze, evaluate, and synthesize pharmacokinetic information and make informed, rational, and responsible evaluation of drug dosage regimens. **(3); Prerequisites:** PSC 641 and PSC 642

PSC 742 G Drug Discovery and Drug Development: This is a translational and multi-disciplinary course that deals with all components of drug discovery and development from the bench to bedside and from concepts to molecules to

medicines. This will include pharmacology, medicinal chemistry, molecular biology, biochemistry, immunology, formulation, delivery, pharmacodynamics, pharmacokinetics, pharmacogenomic, regulatory affairs, clinical research, clinical trials and evidence based medicine, marketing, business development, sales, medical affairs and patent filing. This course will be presented by the course coordinator who will be supported by experts from various pharmaceutical and biotechnology companies, and will include a number of case studies to illustrate the development of several blockbuster drugs. **(3); Prerequisite:** PSC 631

PSC 743 G Pharmaceutical Stability: Stability is a critical attribute of pharmaceutical products and drug ingredients. Pharmaceutical stability studies are integrated and essential in drug development and approval process, from early pre-formulation studies to post-market stages. This course studies the factors that influence drug stability, the mechanism of degradations, the methods to predict the stability, and strategies of stabilization. It also combines fundamentals and applied perspectives on the pharmaceutical stability assessment, which introduce the methods to analyze stability and determine shelf-life. An overview of the current industrial practices for stability testing is also provided. **(3)**

PSC 744 G Special Topics in Pharmaceutics: This is a mentor-student proposed course designed to allow students study diversified subjects of current interest which are not available in other courses. The subjects are related to physical pharmacy, biopharmaceutics, drug delivery, drug development and/or formulation design. The course is conducted through lectures, tutorial studies, library assignments and/or research projects in the selected areas of advanced study. The student under faculty advisement must propose a course plan to the department Graduate Curriculum Committee Chair for approval before registration. **(1-3); Prerequisites:** PSC 641 and PSC 642 or permission of instructor

PSC 753 Pharmacology and Molecular Genetics of Cancer: This is an elective course for all Pharmaceutical Sciences M.S. graduate students (Pharmacology Track) and includes a study of the molecular-genetic mechanisms underlying tumorigenesis, including the role of oncogenes, tumor suppressors, and pathogens (viruses and bacteria). Genomic approaches to the study of both hereditary cancers and somatic mutations will be explored. The pharmacology of current cancer therapeutics and the rational design of novel anti-cancer drugs will be discussed throughout the course. **(3); Prerequisites:** PSC 632

PSC 754 G Nanotechnology in Cosmetics: This course applies principles of biopharmaceutics and formulation design to discuss frequently used cosmetic agents and nanostructured delivery systems in skin care products. Emphasis will be given to the use of leading delivery

systems and their effect on the skin barrier, properties and penetration of active compounds. Microemulsions, nanoemulsions, multiple emulsions, lipid- and polymeric-based particulate systems and liquid crystalline systems will be discussed. **(2); Prerequisites:** PSC 641 and PSC 642 or permission of instructor

PSC 761 G Thesis Research: This course is required for all Pharmaceutical Sciences graduate students (thesis track) and consists of an independent research project which has been designed by the student, in consultation with the thesis advisor. The thesis advisor and thesis committee will be selected. The student will then develop a thesis proposal which will be approved by the thesis committee. Once the work described in the thesis proposal has been completed, the student will write and defend the thesis. It is anticipated that the thesis research will be completed over 2-3 semesters. **(1-8)**

PSC 771 G Industrial Internship: Students will learn practical aspects of one or multiple fields of the pharmaceutical sciences in an industry setting. They will have opportunity to further develop technical skills while applying theoretical and course-learned background. Drug synthesis, study of mechanisms of action of drugs, formulation and pre-formulation, pharmacokinetics, quality control and regulatory affairs are examples of specific fields in which students may gain experience through this internship. **(3-6); Prerequisites:** PSC 631 and permission of advisor

PSC 851 G Pharmacology Seminar: This course is required for all Pharmaceutical Sciences graduate students (Pharmacology Track) and consists of group discussions of original research articles and review articles that focus on current relevant topics in the field of pharmacology. The primary goal of this course is to stimulate the critical analysis of the experimental design and the quality of the data, as it contributed to the development of the specific area of research. Each topic will be addressed through examination of articles that describe key developments, controversial findings or a historical progression of the development of a particular topic. Topics for discussion will be chosen by each faculty member participating in the course, according to his/her area of specialization/expertise. **(2); Prerequisites:** PSC 631, PSC 632, PSC 633, PSC 634

PSC 852 G Pharmaceutics Seminar: This course is required for all Pharmaceutical Sciences graduate students (Pharmaceutics track) and consists of focused group discussions of original research papers and review literature in drug delivery systems and formulation design. The course will be divided in four major administration routes (transdermal, oral, pulmonary and mucosal - vaginal and buccal - delivery). Papers illustrating the development and evaluation of lipid-based systems, bioadhesive systems and polymeric particulate systems,

will be discussed in the context of their relevance to each route. **(2); Prerequisites:** PSC 631, PSC 641, PSC 642

PSL 301 Pharmacy Skills Lab I – Pharmacy Skills Laboratory prepares Doctor of Pharmacy students to practice skills used in the process of medication preparation and delivery. Skills Lab 1 is first in the series of six courses and focuses on preparing the student to practice as a community intern. The focus of this course is on pharmaceutical calculations and extemporaneous compounding of common dosage forms. Faculty who are licensed pharmacists who have practiced in a variety of health-care settings will facilitate class discussions and demonstrations. The laboratory portion of the course is designed to enhance the student's ability to effectively prepare and dispense compounded products. **(1); (Doctor of Pharmacy Students only.)**

PSL 302 Pharmacy Skills Lab II – Pharmacy Skills Laboratory is a six-semester course that prepares Doctor of Pharmacy students to provide pharmaceutical care related to safe and effective medication preparation and delivery. The course is designed to instill values, attitudes and skills that enable lifelong intellectual, personal and professional growth. Skills Lab 2 is the second in the series of six courses and focuses on preparing the student to practice as a community intern. The focus of this course is on professional communication, medication dispensing and non-sterile compounding with commercially available products. Students will learn about legal and ethical issues related to community pharmacy practice. The laboratory component allows practice of these principals and skills. The course faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. **(1); Pre-requisite: PSL301**

PSL 431 Pharmacy Skills Lab III – Pharmacy Skills Laboratory is a six-semester course that prepares Doctor of Pharmacy students to provide pharmaceutical care related to safe and effective medication preparation and delivery. The course is designed to instill values, attitudes and skills that enable lifelong intellectual, personal and professional growth. Skills Lab 3 is the third in the series of six courses and focuses on preparing the student to practice as an institutional intern. The focus of this course is on inter-professional communication, dosing, and medication admission and discharge counseling. Students will become familiar with medication preparation and documentation, and technology that is commonly seen in institutional settings. The laboratory component allows practice of these principals and skills. The course faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. **(1); Pre-requisite: PSL301, PSL302**

PSL 432 Pharmacy Skills Lab IV – Pharmacy Skills Laboratory is a six-semester course that includes both

laboratory and lecture components and prepares Doctor of Pharmacy students to provide pharmaceutical care related to safe and effective medication preparation and delivery. These courses are designed to instill values, attitudes and skills that enable lifelong intellectual, personal and professional growth. Skills Lab 4 focuses on the preparation of sterile products. Students will become familiar with IV preparation calculations, sterile technique, IV manipulation and preparation. The laboratory component allows practice of these principals and skills. The course faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. **(1); Pre-requisite: PSL301, PSL302, PSL431**

PSL 531 Pharmacy Skills Lab V. Pharmacy Skills Laboratory is a six-semester course that prepares Doctor of Pharmacy students to provide pharmaceutical care related to safe and effective medication preparation and delivery. Skills Lab 5 centers on patient assessment. The focus of this course is performing aspects of physical examination to diagnose and triage common self-treatable diseases and adverse drug reactions. Students will become familiar with physical assessment techniques and home diagnostic and monitoring devices. The laboratory component allows practice of principals and skills learned in lecture. The course faculty who facilitate discussions and demonstrations are licensed health-care professionals that have practiced in a variety of health-care settings. **(1); Pre-requisite: PSL301, PSL302, PSL431, PSL432**

PSL 532 Pharmacy Skills Lab VI. Course description will be given in course syllabus. **(1). Pre-requisites: PSL301, PSL302, PSL431, PSL432, PSL531**

PSY 101 General Psychology (formerly LAS 221): This survey of basic concepts in psychology acquaints students with the principles of behavior underlying motivation, learning, personality development and normal and abnormal adaptive processes, as well as with experimental and applied approaches to the understanding and modification of behavior. The course emphasizes current concepts regarding factors that influence overall human adjustment. **(3)**

PSY 140 Mind and Morality (formerly LAS 142): This course explores how psychology helps us to understand what moral reasoning and behavior are all about. Can psychology explain significant aspects of human life? To answer this question, the course will examine "morality" as an expression of human social existence, "moral philosophy" as a justification for moral beliefs and principles, and "the mind" as the primary context of moral reflection and argument. In the end, psychology and ethics will be brought together. **(3)**

PSY 181 Human Development (formerly BIO 181): This course traces human development chronologically from

conception to late life. At each major life stage, the changes a person experiences on the biological, psychological (cognitive and emotional), and social levels will be explored, as well as the unique problems and issues that affect people in that stage of life. End of life issues and bereavement will also be covered at the end of the course. **(3)**

PSY 210 Abnormal Psychology (formerly LAS 226): This course explores psychopathology from several different theoretical perspectives, including behavioral, cognitive, psychodynamic and biological. Diagnostic classification, etiological theories and treatment approaches to psychopathology will be reviewed. Special emphasis will be given to a multi-cultural analysis and to incorporation of the current DSM diagnostic system. **(3); Prerequisite: PSY 101**

PSY 215 Becoming Human (formerly LAS 324): This course explores central aspects of being human. Students examine masculine and feminine identity and their roles in the world as worker, doer, healer and quester. The purpose of the course is to deepen awareness of what it means to become fully human. Readings are drawn from philosophy, psychology and literature. **(3); Prerequisite: PSY 101**

PSY 321 Health Psychology: Building upon basic psychological principles learned in General Psychology, this course introduces the field of health psychology by examining the mental, emotional, social, and behavioral factors that affect the onset, recovery, and prevention of physical illnesses. The role of health services and patient-provider relations in health promotion and disease will also be examined. **(3); Prerequisite: PSY 101**

PTP 401 Principles of Pharmacology and Medicinal Chemistry (formerly BIO 411): This introductory course is required for all PharmD and an elective for BS Pharmaceutical Sciences students. The course reviews the basic core principles of pharmacology/medicinal chemistry, setting the stage for subsequent integrated Pharmacology/Therapeutics modules which cover specific diseases along with relevant drug classes. Receptors and receptor binding, dose response curves, pharmacokinetics (absorption, distribution, and elimination of drugs), pharmacodynamics (drug concentration and effect), biotransformation of drugs, pharmacogenomics and factors affecting drug action will be discussed. **(2); Prerequisite: PSC 311, PSC 312, PSC321 and PSC 322**

PTP 410 PTPM Respiratory - PTPM2 is a 1-credit course focused on respiratory disorders. This is one in a series of 11 courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/Pathophysiology I & II and Principles

of Pharmacology and Medicinal Chemistry, courses in this series are organized by therapeutic area (e.g. respiratory disorders conditions are the focus of this course). Taught by both basic-science and clinical faculty, course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics of respiratory disorders. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(1); Prerequisites:** PTP401, PHM329

PTP 425 *PTPM Endocrine* – PTPM3 is a 2-credit course focused on the endocrinology system. This is the fifth in a series of ten courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/Pathophysiology I & II and Principles of Pharmacology and Medicinal Chemistry, courses in this series are organized by therapeutic area (e.g. endocrinology conditions are the focus of this course). Taught by both basic-science and clinical faculty, course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics of endocrinology disorders. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(2) Pre-requisite: PTP 401**

PTP 526 *PTPM Complementary and Alternative Medicine.* PTPM Complementary and Integrative Medicine is a 1-credit course focused on examples of types of complementary medicine therapies available to patients. This course is intended to expand students' understanding of complementary medicine. Course content will focus on different complementary medicine therapies available to patients and the philosophic underpinnings of these systems. Taught by both pharmaceutical science and pharmacy practice faculty, course content is integrated to promote an analytical understanding of fundamental concepts in treatment and will examine mind-body medicine and traditional systems of therapeutics including: Traditional Chinese Medicine; Ayurvedic Medicine: Bodywork, including Osteopathic Medicine, Chiropractic Medicine and Therapeutic Massage; Homeopathy; Dietary Supplements; and Herbal Products. Emphasis will be placed on evidence-based medicine but

also will include discussion on helping patients interested in using Complementary Medicine to make safe, educated decisions. Students will be introduced to the Complementary Medicine Databases such as Cochrane Reports, Natural Standard and other reliable Complementary Modalities. General knowledge and skills development in this course will prepare students for problem-solving workshops, experiential education, and pharmacy practice. **(1)**

PTP 431 *PTPM GI/Nutrition* – PTPM 4 is a 2-credit course focused on the gastrointestinal (GI) system. This one in a series of 11 courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/Pathophysiology I & II and Principles of Pharmacology and Medicinal Chemistry, courses in this series are organized by therapeutic area (e.g. GI conditions are the focus of this course). Taught by both basic-science and clinical faculty, course content is integrated to promote an analytical understanding of fundamental drug, nutritional and disease concepts as well as practice-based therapeutics of GI disorders. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(2); Pre-requisites: PTP 401; PHM329**

PTP 440 *PTPM Cardiovascular* – PTPM1 is a 4-credit course focused on the cardiovascular system. This is the first in a series of 11 courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/ Pathophysiology I & II and Principles of Pharmacology and Medicinal Chemistry, courses in this series are organized by therapeutic area (e.g. cardiovascular conditions are the focus of this course). Taught by both basic-science and clinical faculty, course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics of cardiovascular disorders. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(4); Prerequisites:** PTP401, PHM329, BIO313, BIO314

PTP 446 *PTPM Infectious Disease* – PTPM5 is a 4-credit course focused on the treatment of infectious diseases. This is part of a series of courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/Pathophysiology I & II and Principles of Pharmacology and Medicinal Chemistry, courses in this series are organized by therapeutic area (e.g. Infectious diseases are the focus of this course). Taught by both basic-science and clinical faculty, course content is integrated to promote an analytical understanding of fundamental drug effects and disease concepts as well as practice-based therapeutics of infectious diseases. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(4); Pre-requisites: PTP 401; PHM329**

PTP 514 *PTPM Rheumatology*. PTPM Rheum is a 1-credit course focused on the rheumatic diseases. This is one in a series of 11 courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. This course is based on Immunology, Physiology/Pathophysiology I&II, Introduction to Pharmacology and Med Chem and is focuses on a specific therapeutic area (e.g. rheumatic diseases are the focus of this course). Taught by both basic-science and clinical faculty, course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics of rheumatic disorders. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(1). Pre-requisites: PTP 401, BIO 313, BIO 314**

PTP 519 *PTPM Oncology*. PTP&M Oncology is a 1-credit course focused on the therapeutic approach to hematology and oncologic disease states. This module is one in a series of modules that will examine therapeutic management of clinical disease states in an interdisciplinary approach taught by both pharmaceutical science and pharmacy practice clinical faculty, while building upon previous courses such as Pathophysiology, Pharmaceutics, and Introduction to Pharmacology and Medicinal Chemistry. This module will integrate both

pharmacology of oncologic agents and the therapeutics of the most common hematologic and oncologic disease states, such as anemia, breast cancer, colon cancer, and lung cancer. In addition, supportive care topics such as prevention and treatment of chemotherapy-related nausea and vomiting and bone marrow suppression will also be highlighted. Using both a lecture and patient case-based format, this module will emphasize evidence based selection of therapeutic and supportive care management, patient-centered pharmaceutical care based recommendations, and managing complex disease states and patients. In addition this module will expand on students' patient assessment skills, patient outcome monitoring, documentation of patient-centered care plans, and patient counseling. Professional practice problems encountered in oncology practice and other pharmacy practice settings, such as adherence to oral chemotherapy and medication safety with oncologic agents will also be discussed. Skill development in this course will prepare students for integrated problem solving workshops, experiential education, and pharmacy practice. Students will be expected to complete assigned reading before class in order to optimize classroom time for active learning exercises **(1); Pre-requisites: PTP 401, BIO 313, BIO 314**

PTP 525 *PTPM Nephrology*. PTPM Nephrology is a 2-credit course focused on the renal system. This is one of a series of courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/Pathophysiology I & II and Introduction to Pharmacology and Medicinal Chemistry, courses in this series are organized by therapeutic area (nephrologic conditions are the focus of this course). Taught by both basic science and clinical faculty, course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics of nephrologic disorders. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(1); Pre-requisites: PTP 401, BIO 313, BIO 314**

PTP 528 *PTPM Genitourinary*. PTPM3 is a 2-credit course focused on the genitourinary system. This is the eighth in a series of ten courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/Pathophysiology I & II and Principles of Pharmacology and Medicinal Chemistry, courses in this series are organized

by therapeutic area (e.g. genitourinary conditions are the focus of this course). Taught by clinical faculty (the basic science components of this course will be addressed during the PTPM2 Endo course), course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics of the genitourinary system. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(2); Pre-requisites: PTP 401, BIO 313, BIO 314**

PTP 549 PTPM Neuro-Psychiatric Disorders. PTPM Neuro/Psych is a 4-credit course focusing on neurologic/psychiatric diseases. This is the ninth in a series of ten courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/Pathophysiology I & II and Principles of Pharmacology and Medicinal Chemistry, courses in this series are organized by therapeutic area (e.g. neuro/psych conditions are the focus of this course). Taught by clinical faculty and basic science faculty, course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics addressing common neurologic and psychiatric diseases. Emphasis is placed on evidence-based selection of rational therapeutic goals, recommendations, and outcome monitoring while using an integrated knowledge of drug properties and clinical diseases. General knowledge and skills development in this course will prepare students for problem-solving workshops, other courses in the PTPM series, experiential education, and pharmacy practice. **(4); Pre-requisites: PTP 401, BIO 313, BIO 314**

SOC 101 Sociology: The ultimate goal of the course is to develop an understanding of the complexity of the world around us and gain new insight into how that social world functions to shape our behavior. By examining the methods, theories and areas of interest to sociologists, students will gain a general understanding of how they, as scientists, analyze the social world. The beginning of the course will (1) explore the assumptions, theories and methods that sociologists use for gaining greater insight into the social world, (2) look at the basic processes that shape the interactions we engage in everyday, and (3) make critical application of theories and methodologies to everyday events and interactions. The remainder of the course will be devoted to the discussing and incorporation of major topical areas within sociology using the theoretical underpinnings. **(3)**

SOC 110 Introduction to Culture and Society (formerly LAS 151): This course introduces the student to global diversity, theoretical ways of looking at cultural behaviors and understanding one's own ethnocentrism. Through film, ethnographic readings and text books, this course will give the student a broad view of societies of varying levels of complexity, focusing on systems of kinship, gender, economics, politics and religion, among others. **(3)**

SOC 115 Introduction to Medical Anthropology (formerly LAS 283): Introduction to Medical Anthropology introduces students to the cultural foundations of illness and curing. The course focuses on non-Western societies and how these societies perceive and treat states of health and disease. The course presents issues of health and disease within a framework of ecological, evolutionary and cultural systems and provides a background in current theoretical perspectives in anthropology. **(3)**

SOC 120 Anthropology of Gender (formerly SOC 110): This course examines the complex relationship between biology and culture regarding the formation of gender and sexuality. Through cross cultural studies, the course introduces diverse ways societies address concerns of gender roles, marriage, and kinship, birth and child socialization, and homosexuality and heterosexuality as well as theoretical approaches to understanding how gender is shaped by and shapes human behavior. **(3)**

SOC 140 Family Violence (formerly LAS 204): This course is designed to provide the student with varied perspectives on family violence including historical, legal, cultural and political views, to familiarize the student with current trends and issues in partner (relationship) abuse, elder abuse, physical child abuse and child sexual abuse, to inform the student about current research on the nature and dynamics of family violence and to increase the student's understanding of the criminal justice, mental health, health care and social service responses to the victims, offenders and family members who are impacted by violence in the family. **(3)**

SOC 145 Race and Ethnicity in America (formerly LAS 274): This course seeks to examine, describe, and explain the conditions and issues that surround a number of racial and minority groups in contemporary America. A variety of theoretical, historical, and topical concerns will be addressed during the course including an introduction to sociological study of racial and ethnic inequality in the United States. Emphasis will be placed on understanding the social, economic, political, historical, and demographic forces that have shaped the experiences of different racial and ethnic groups in the United States. This course will also address the processes that gave rise to race and ethnicity as important forces in the United States and the sociological perspectives that govern the understanding of these forces. **(3)**

SOC 210 *Aging and Society*: This course will provide an introduction to the sociology of aging using the life course perspective. Examining various theoretical frameworks and perspectives will help students to explore a variety of issues related to an aging population. We will explore the demographic, social and health aspects of aging from both a macro-level and the individual experiences of an aging population. In addition we will review organizational, community, and public policy responses to an aging population. **(3); Prerequisite:** HUM 102

SOC 310 *Evolution of Society and Human Health (formerly LAS 912)*: This course is designed to educate students about the relationship between society, culture and human biology through examination of the history of human health as it has been influenced by urbanization. The course begins with the earliest human societies and traces the history of human health in hunting/gathering societies, agricultural societies, medieval cities, industrial cities and cities today. Approximately half the course focuses on health in modern cities and developed nations. **(3); Prerequisite:** HUM 201

SOC 315 *Social Aspects of Health Care (formerly PAD 333)*: This course educates students about the relationship between human health and society, economics, politics, ideology and biology through examination of the history of human health policy and contemporary issues. **(3); Prerequisite:** HUM 201

SOC 320 *Social Policy*: This course examines the American system of public policy toward social concerns; program development and evaluation; implementation and management specifically in the areas of health, education, welfare reform, aging, etc. Programs developed by governments to ameliorate these problems have typically been public insurance programs or cash transfers such as unemployment insurance, welfare, and Social Security. Collectively these programs are known as "the welfare state". As such this course will examine the origins of the U.S. welfare state, its development over time, and features that make it distinctive as compared to welfare states in other nations. We will review existing policy regarding major social issues in the field of social welfare and understand the differential impact of policy on various populations. **(3); Prerequisite:** HUM 201

SOC 325 *Medical Sociology*: The purpose of this course is to provide an overview of the general field of medical sociology. Research and analysis of the medical environment from a sociological perspective will be explored. The course will focus on the major concerns of medical sociology: social facets of health and illness, the social functions of health institutions and organizations,

the relationship of systems of health care delivery to other social systems, and the social behavior of health personnel and consumers of health care services. By examining the methods, theories, and research studies within the field of medical sociology, students will begin to appreciate and understand the role of social and cultural factors in health, research on the use of health services, the health professions, health-care organizations, and major issues in public policy and health care. **(3)**

SOC 410 *Language and Culture (formerly LAS 244)*: This course acquaints students with various ways that language and cultures are connected. People in all cultures use speech as the primary means to attain goals, to fulfill needs and to negotiate social relationships. Language use is culturally structured. The course explores how various ethnic groups as well as men and women use language differently. In addition, students examine theories of language socialization and cross-cultural language practices, and learn ways to analyze everyday speech. **(3) Prerequisite:** SOC 110

UGC MBA 510 *Financial Accounting*. An introduction to the generally accepted accounting principles of financial accounting as applied to publicly reported financial statements. Emphasis is to be placed on understanding the application of "generally accepted accounting principles" to financial statements. This course is designed for individuals with no prior academic or professional education on the topic of financial accounting. **[Union Graduate College]**

UGC MBA 512 *Managerial Accounting and Finance*. An introduction to the tools and techniques of financial analysis and decision-making. Topics covered include financial statement analysis, cost classification and behavior, cost-volume-profit analysis, incremental cost analysis, time value of money, capital budgeting, and financial planning. Spreadsheet programs are used in this course. Prerequisite: Financial Accounting UGC MBA 510. Students are expected to be proficient in the use of Microsoft Excel®. **[Union Graduate College]**

UGC MBA 635 *Project Management*. A project is a one-time or infrequently occurring operation with a unique goal, a limited lifespan, and limited resources. This course will focus on the basic components of project management, including statements of work, project selection, leadership and team building, communication, budgeting, resource scheduling, metrics and closure. Students will have the opportunity to develop a project plan of their own choosing using MS Project as well as explore current issues in project management through case discussions. **[Union Graduate College]**

ARTICULATION AGREEMENTS

ACPHS offers students the opportunity to pursue several additional courses of study through established agreements with area educational institutions. These agreements allow for seamless transitions between ACPHS and programs listed below.

Medical School Early Assurance Program with Albany Medical College

This agreement provides qualified ACPHS students who are enrolled in the B.S. in Pharmaceutical Sciences Program at the College with the opportunity to apply to medical school at the end of their second year. If accepted, students are assured admission two years later, upon completion of their undergraduate degree.

Articulation Agreement between ACPHS and Union College

This agreement provides an opportunity for qualified ACPHS students, after two years at the College, to pursue a liberal arts degree, or those qualified students from Union College, after two years at Union College, to pursue a Bachelor of Science or Doctor of Pharmacy at ACPHS.

Articulation Agreement between ACPHS and Hudson Valley Community College

This agreement provides an opportunity for qualified students who have completed the two-year associate's degree in Biotechnology at Hudson Valley Community College to pursue a Bachelor of Science degree at ACPHS. Students will enter in the third year of the B.S. program.

Articulation Agreement between ACPHS and Schenectady County Community College

This agreement provides an opportunity for qualified students who have completed the two-year degree in Science at Schenectady County Community College to pursue a BSBT in Clinical Laboratory Sciences or Cytotechnology at ACPHS. Students will enter as juniors and complete the Biomedical Technology, Clinical Laboratory Program.

JOINT DEGREE PROGRAMS WITH OTHER ACADEMIC INSTITUTIONS

ACPHS works closely with other educational institutions to provide joint degree opportunities so that students may pursue two closely related degrees in a shortened time period. Joint programs are listed below.

Pharm. D. or B.S./Master of Science in Clinical Leadership in Health Management or an MBA in Health Systems Administration

Union Graduate College and ACPHS offer a cooperative program that allows Pharmacy or Pharmaceutical Sciences students to begin courses toward a Master of Science in Clinical Leadership in Health Management or an MBA in Health Systems Administration degree while enrolled at ACPHS. Selected courses from the student's curriculum also may be applied to the completion of the M.S. in Clinical Leadership.

Joint B.S. /J.D. Juris Doctor with Albany Law School

This 3+3 program allows incoming B.S. students to apply to both ACPHS and Albany Law School for joint acceptance. Once in the program, students will complete the first three years at ACPHS. The remaining three years will be completed at Albany Law School. Students must maintain a specified GPA and obtain an appropriate score on the LSAT to enter the Albany Law School program. Students will be awarded the a B.S. and a Juris Doctor in six years, instead of the typical seven.

Joint B.S. in Pharmaceutical Sciences/M.S. with Albany Medical College

This program allows enrolled B.S. in Pharmaceutical Sciences students to complete their B.S. at ACPHS and their M.S. from Albany Medical College in one of four areas of concentration in a total of five years (three years at ACPHS and two years at AMC). The M.S. degree concentration areas include: Cardiovascular Sciences, Cell Biology and Cancer Research, Immunology and Microbial Disease, Neuropharmacology and Neuroscience. Students are required to apply at the end of their second year in one of the College's B.S. programs for acceptance into this joint degree program.

Joint Admission Program between ACPHS and Albany Medical College's Center for Physician Assistant Studies (CPAS)

CPAS offers to highly qualified students in any of the College's B.S. programs with the opportunity to apply to the Center concurrent with admission to ACPHS. If accepted, and subject to compliance with the requirements, each such student will be assured of admission to the Center's program upon completion of the

prerequisite courses, experience and undergraduate degree (with a minimum grade point average of 3.2). Accepted students will be able to focus on achieving a strong knowledge base in the sciences, completion of prerequisite courses and obtaining the required health related experience. Students enrolled in the joint program will complete their program of study with ACPHS at the end of fall semester in the fourth year and matriculate to AMC at the beginning of the spring semester.

B.S. in Biology (The College of Saint Rose) with concentration in Cytotechnology (ACPHS)

This agreement allows students in the Biology degree program at the College of Saint Rose to complete their senior year in the Cytotechnology program at ACPHS. Upon successful completion, graduates receive a Bachelor of Science degree with a concentration in Cytotechnology from the College of Saint Rose, which allows graduates to sit for the national registry examination and to be eligible for New York State Licensure as a Laboratory Professional.

B.S. in Clinical Biology (Sage College of Albany) and Clinical Laboratory Sciences or concentration in Cytotechnology (ACPHS)

This agreement allows students in the Clinical Biology degree program at Sage College of Albany to complete either their junior and senior years or their senior year in the Clinical Laboratory Sciences or Cytotechnology program, respectively, at ACPHS. Upon successful completion, graduates receive a B.S. in Clinical Biology from Sage College of Albany with a concentration in Cytotechnology, which allows graduates to sit for the national registry examination and to be eligible for New York State Licensure as a Laboratory Professional.

B.S. (St. Michael's College, Colchester, VT) and Pharm.D. (ACPHS – Vermont)

This agreement provides an opportunity for qualified students who have completed the necessary prerequisites at St. Michael's College, Colchester, VT to pursue the Doctor of Pharmacy Program at ACPHS. Students will enter as P1 students, receive their BS from St. Michael's College after completing the P1 year and receive their Doctor of Pharmacy after completing the P⁴ year of the Doctor of Pharmacy Curriculum.

RESEARCH

Research is also a vital part of the institution. In addition to the independent research projects conducted by individual faculty members, the College has also established the following two research institutes to facilitate the translational research projects:

- The Pharmaceutical Research Institute (PRI) opened in 2003. PRI is dedicated to cutting-edge research, pharmaceutical services and education and focuses its drug discovery efforts on angiogenesis, thrombosis and vascular disorders. The Institute is also playing a leading role in the convergence of nanotechnology and biotechnology through the Center for NanoPharmaceuticals, which operates under the umbrella of PRI.
- The Research Institute for Health Outcomes (RIHO) was established in 2006 to help address the need for high-quality, scientifically sound medical and financial data in health outcomes and pharmaco-economic research. RIHO merges the research activities and clinical expertise of more than a dozen ACPHS faculty into a diverse, transdisciplinary group that works in collaboration with researchers locally, nationally and internationally to deliver empirical results aimed at maximizing patient care with limited financial resources.

STUDENT SUMMER RESEARCH AWARD PROGRAM

ACPHS provides research awards to exceptional students at our Albany and Vermont campuses through its annual Student Summer Research Award Program. These awards are made in recognition of meritorious student-faculty applications which engage students in research or scholarly activity. The program provides a maximum of ten (10) research awards, in the amount of \$2,000 each, to ACPHS students interested in pursuing laboratory, clinical, or other research projects and scholarly activities under the guidance of a faculty mentor from the following departments: Arts & Sciences; Health Sciences; Pharmaceutical Sciences; and Pharmacy Practice. The Research Award Program is competitive and awards are made based on the information supplied by the student applicant and their faculty mentor. The research experience will occur over the course of the summer (May to August), for a minimum of 280 hours. All awardees are required to provide a 15-minute PowerPoint presentation on their research experience. Full-time students in all degree programs at Albany and Vermont, who are in good academic standing are eligible. Please visit the OGA Blackboard web page for more information.

CONTINUOUS ACADEMIC QUALITY IMPROVEMENT

ACPHS is committed to being a pre-eminent educational institution that prepares and supports leaders in healthcare. As such, we are engaged in a continuous cycle of development, adaptation, evaluation and revision, of programs and policies. In order to study the effectiveness of admissions procedures, curriculum, student services, student life and other areas, we employ a variety of assessment tools including course evaluations, surveys or focus groups or analysis of data from scholastic records. The results of the studies will be used by ACPHS administration and faculty to guide decisions focused on providing the optimum academic experience. In order to demonstrate our commitment to continuous improvement of the curriculum, services provided and the general education environment we may also share results with students, alumni and the public. ACPHS is dedicated to maintaining the confidentiality of any information we collect. Data presented will be in a format which is cumulative and ensures anonymity. Our assessment activities and studies will be monitored by the Office of Institutional Effectiveness. Annual reports will be made to the Institutional Review Board (IRB) regarding assessment studies. Individual studies will be submitted to ACPHS's IRB for formal review, if appropriate. The IRB will request reports on the status of studies and conduct audits as the IRB deems necessary.

ACADEMIC REGULATIONS

COLLEGE-WIDE ACADEMIC STANDARDS

Academic regulations for all programs at ACPHS are developed and adopted by the faculty and are administered by the College administration. Oversight of the academic regulations is conducted by the Academic Standing Committee, a committee of faculty that reviews student academic records and makes recommendations regarding academic status to the Dean of Students in Albany or the Assistant Dean for Students in Vermont. Students who fail to meet the minimum standards required for good academic standing will be notified of the decisions of the Academic Standing Committee in writing by the Dean of Students.

ACADEMIC STANDING

The academic standing of all students is reviewed at the end of the each semester in order to assist students in maintaining the appropriate level of academic performance to assure their successful completion of their program of study. Students are encouraged to avail themselves of the academic advising and tutoring resources available at the College in order to prevent and address areas of difficulty. A student with a pattern of academic performance that demonstrates difficulty may be required to seek guidance and assistance. Each program has specific academic regulations which must be met in order to remain in the program. A student enrolled at the College is entitled to apply for transfer from one academic program to another.

GRADING AND GRADE-POINT AVERAGES:

Faculty are responsible for assigning grades in each course. Grades, grade point average equivalents and numerical grade equivalents are listed below. A grade of I (incomplete) may be assigned when a student fails to complete the requirements of the course within the semester of enrollment due to extenuating circumstances. The incomplete work must be made up before the end of the following semester (excluding summer sessions), otherwise the grade of I will be converted to an F by the registrar. A student who withdraws from a course within the first four weeks of an academic semester will be assigned the grade of W (withdrew). Students who are granted withdrawal later than four weeks into an academic semester will be assigned the grade of WP (withdrew passing) or WF (withdrew failing). The date of withdrawal from a course, or the College, is that date on which a written notice of withdrawal is received by the registrar. Withdrawal from a course will not be allowed beyond eight weeks into the semester except by permission of the Dean of students after consultation with the course instructor/coordinator. Some courses are graded on a pass/fail basis. Grades of P, W and WP are not calculated into the GPA. Grades of F and WF are calculated into the GPA. In the event of an unresolved conflict between an instructor and a student over a course grade, the student should refer to the "Course Concerns" policy found in this catalog. Semester, cumulative and professional GPAs are calculated by dividing the total quality points earned by the total credits. Earned quality points for each course are calculated by multiplying the number of credits for that course by the GPA equivalent. For example, a student taking Physiology/Pathophysiology I (4 credit course) receiving a grade of B+ (GPA=3.3) would earn 13.2 quality points (4 credits x 3.3 GPA=13.2). The total (semester, cumulative, or professional) quality points earned is determined by adding the quality points of all courses. To determine academic standing, GPAs are rounded to a tenth of a point (0.1). Students are required to maintain minimum semester, cumulative and professional GPAs as required by their program. Professional courses are defined as all required courses in years P1-P4 in the Doctor of Pharmacy curriculum.

LETTER GRADE, NUMERICAL GRADE AND GPA EQUIVALENTS

Letter Grade	Numerical Equivalent	GPA Equivalent
A+	> 97	4.0
A	93-96	4.0
A-	90-92	3.7
B+	87-89	3.3
B	83-86	3.0
B-	80-82	2.7
C+	77-79	2.3
C	73-76	2.0
C-	70-72	1.7
D+	67-69	1.3
D	63-66	1.0
D-	60-62	0.7
F	< 60	0.0

REPEATED COURSES

Students who earn grades less than C- in courses taken at the College may, with the permission of the instructor and Dean of Students, retake those courses at consortium or non-consortium colleges. Grades of B and higher earned in repeated courses taken at institutions other than ACPHS will be granted credit at the College. However, neither these grades nor the original grades earned at the College will contribute to the student's GPA at ACPHS. Independent study cannot be used for remedial purposes.

ATTENDANCE POLICIES

Students are expected to attend all assigned classes. Students who have documented absences which exceed 10 percent of the total number of scheduled instructional hours for any given course may, at the discretion of the instructor, receive a grade of I or F and/or be refused admission to the final examination. The College expects instructors to be reasonable in accommodating students whose absence from class resulted from: (1) personal illness; or (2) family bereavement and/or other compelling circumstances. Instructors and the College have the right to request documentation verifying the basis of any absences resulting from the above factors. Any student who believes that his or her final grade for a course has been reduced unfairly because of attendance factors has

the right to appeal that grade if an attempt to resolve the issue with the instructor is unsuccessful. Procedures for a grade appeal are described under the “Course Concerns” policy found below.

COURSE CONCERNS

Students are encouraged to discuss concerns about grading and other academic issues with faculty according to the following sequence: The first step of the appeals process is a discussion with the faculty member teaching the course or section of the course, in collaboration with the course coordinator, where applicable. The appeal process must be initiated within two weeks of the examination, assignment or academic incident that is the subject of the appeal. If the concern is not resolved satisfactorily through discussion with the faculty member, the student should consult the course coordinator. In the event that a mutually acceptable resolution is not achieved with the course coordinator, the student may appeal in writing to the department chair. If the issue is still unresolved at this stage, the final step in the appeal process is to submit a written appeal, including any supporting documents, to the School’s Dean. The decision of the School’s Dean is final.

LEAVE OF ABSENCE/WITHDRAWAL

A student requesting leave of absence or withdrawing from the College is required to provide written notice to the Dean of Students in the Office of Student Affairs. For leave, the request should state the reason(s) for the leave and the duration desired. Additionally, for leave of absence requests, a meeting with the Dean of Students is required and supporting documentation must be provided. Leaves are limited to one year and may be granted for medical reasons or for other extenuating personal circumstances.

INDEPENDENT STUDY AND/OR RESEARCH

Students may register for up to three credit hours per semester under the supervision of a faculty member. Independent study varies with the student and the project, according to the judgment of the supervising faculty member(s). Interested students with cumulative overall and professional GPAs of 2.5 or higher must submit to the Office of Student Affairs a written plan for the independent study. This plan shall include the faculty supervisor’s description of how student performance will be evaluated and the approval of the department chair. It shall be submitted at least two weeks prior to the registration period for the semester of enrollment. Forms are located on the registrar’s website.

EXTERNAL CROSS REGISTRATION FOR ACPHS STUDENTS

A voluntary consortium of the public and independent colleges within the Capital Region, was formed to explore avenues in which institutions might cooperate for the mutual benefit of students. Both credits and grades for elective courses taken at one of the colleges or universities belonging to the consortium will be recorded on the student’s ACPHS transcript for fall and spring semesters only. Each member college provides diverse course offerings and campus life. Through a cooperative agreement with other colleges in the consortium, ACPHS students may take one course per semester at another member undergraduate campus without paying tuition, provided the course is not available at ACPHS. All fees in excess of tuition are the responsibility of the student. Students interested in taking a graduate-level course must contact the Dean of Graduate Studies to obtain appropriate clearance. Procedures and regulations governing cross-registration are available in the office of the registrar or on the Registrar’s web site. Other members of the consortium include Adirondack Community College, The College of Saint Rose, Empire State College, Hudson Valley Community College, Maria College, Rensselaer Polytechnic Institute, The Sage Colleges, Schenectady County Community College, Siena College, Skidmore College, Union College, Southern Vermont College, Union Graduate College of Union University and the University at Albany-SUNY. Permission must be granted by the registrar prior to enrollment in elective courses at other institutions (both consortia and non-consortia). Only students needing elective credit to fulfill their requirements at ACPHS are eligible to cross-register. Transfer credit only (no grade) will be granted for elective courses taken at any non-consortia institution and during the summer semester at consortia institutions. A minimum grade of C (C- is not acceptable) is required to receive transfer credit. There are special conditions for those students repeating a course; please refer to the “Repeated Course” section in this document. *Note: A similar arrangement exists for students at the Vermont campus with St. Michael’s College.*

POLICY FOR INTERNAL TRANSFER INTO AN ACPHS B.S. PROGRAM

A student currently enrolled at the ACPHS is entitled to apply for transfer from one academic program to another contingent upon review by the Program Director of the desired program. An application form is available from the Program Director, the Registrar's office, or on the Registrar's website located on Blackboard. The Program Director will review applications and the decision to grant the transfer request will be based upon the feasibility of the student to enroll in courses required for the program requested. The review will consider the schedule of course offerings and the student's record of completed courses. The timeframe for completion of all program requirements will be dependent on the student's record of completed coursework at the time of the program transfer. It should be noted that the granting of the transfer request may require additional time to satisfy all new program requirements. *Please Note: Students wishing to enter the Doctor of Pharmacy program are required to apply through PharmCAS, Pharmacy College Application Service, at www.PharmCAS.org.

DEAN'S LIST:

Dean's List standing is given to full-time students who have a semester GPA of 3.2 or greater, provided there are no other deficiencies. For the Fall of 2013 semester, students will be required to have a GPA of 3.5 or greater to be eligible for the Dean's List. Sixth year Pharm. D. students will be eligible to earn recognition in the form of Experiential Honors (see below) in place of Dean's List recognition beginning with the graduating class of 2014.

GRADUATION ACADEMIC HONORS FOR UNDERGRADUATES:

Summa Cum Laude	3.8 – 4.0
Magna Cum Laude	3.5 – 3.7
Cum Laude	3.3 – 3.4

Beginning with the graduating class of 2014, graduation academic honors will change as follows and only didactic coursework taken at ACPHS will count in the computation of academic honors, regardless of the degree program:

Summa Cum Laude	3.9 – 4.0
Magna Cum Laude	3.7 – 3.8
Cum Laude	3.5 – 3.6

REQUIREMENTS FOR GRADUATION

Candidates for all degrees must have satisfied all of the academic requirements and be approved for conferral of the degree by a majority vote of the faculty.

EXPERIENTIAL HONORS:

Beginning with the class of 2014, the College will recognize the top 10% of the class for Experiential honors. This recognition will be based on grades and preceptor comments regarding a student. A special ribbon or cord will be selected to recognize these students.

PREREQUISITES

Waiving the prerequisite requirement(s) can only be granted if a written/electronic approval from the course instructor is received by the Registrar office. Replacing ACPHS courses by similar courses from other academic institutions must receive prior approval of ACPHS course professor or course coordinator.

COURSE WAIVER REQUIREMENTS FOR MATRICULATED STUDENTS

New students accepted to the ACPHS are required to take all required courses in the program at the College. This requirement may be waived for students with academic credit for biochemistry, molecular biology and/or immunology courses taken at other academic institutions. Waiving the requirement will be considered if:

- Academic credit for the course was earned within the last three years from an accredited academic institution;
- A grade of B or better was earned in the course;
- The course is a 300-level (third year) course.

COURSE WAIVER PROCEDURE FOR ACCEPTED STUDENTS

1. Students submit a request for course waiver in writing to the Office of Admissions, along with the course description and syllabus from the academic institution where course credit was earned.
2. The Office of Admissions will forward the course description and syllabus to the chair of the department that offers the course at ACPHS.
3. The department chair will identify a credentialed faculty member in the department (usually course coordinator) to review and evaluate the course description syllabus. The faculty member will make a written recommendation (with supporting rationale) about whether the course fulfills ACPHS requirements to the department chair.
4. The department chair will review the recommendation on the course made by the faculty member, and make a departmental recommendation on the course to the Admissions Committee.
5. The Admissions Committee will review all materials available related to the request for the course waiver, including letter of request from the student, student transcript, course description, course syllabus and department recommendation. The Admissions Committee will grant or deny the request for a waiver based on evaluation of all materials provided and forward this decision to the Office of Admissions. The Office of Admissions will send all decisions on course waiver requests directly to the student in writing, pending receipt of final grades for courses for which a waiver is requested.

The following college wide descriptions of academic probation and academic dismissal apply to students currently enrolled in the freshman class starting with 2010. See program specific requirements for additional regulations.

ACADEMIC PROBATION:

A student will be placed on probation if any of the following conditions exist:

- A semester or cumulative GPA below 2.0
- Two or more grades below C-
- A single grade of F

ACADEMIC DISMISSAL:

A student may be dismissed from the College if one of the following conditions exists:

- Two instances of probation (whether consecutive or non-consecutive)
- A semester GPA below 1.6

The following college wide descriptions of academic probation and academic dismissal apply to students enrolled as freshman before 2010 (i.e. 3rd, 4th, 5th and 6th year undergraduate students).

ACADEMIC PROBATION:

A student will be placed on probation if any of the following conditions exist:

- Any grade point average (GPA) below 2.0 (semester, cumulative, professional semester, professional cumulative);
- Grade of F in one or more courses.

ACADEMIC DISMISSAL:

A student may be dismissed from the College if one of the following conditions exists:

- Career GPA < 2.0 at the end of the first or second year
- One or more grades of F in two consecutive terms
- Two or more grades of F in any single term

- Grades of D+, D, D- or F in three or more courses in any single term
- Two consecutive or non-consecutive terms of probation
- Three introductory or advanced pharmacy practice experience (IPPE/APPE) grades of less than C
- Two introductory or advanced pharmacy practice experience (IPPE/APPE) grades of F

A student on academic probation must improve academically and meet the conditions of probation recommended by the Academic Standing Committee and administered by the Dean of Students before being removed from academic probation. While on academic probation a student is ineligible for class and student organization office, joining a fraternity, participation in intercollegiate athletics and service on College committees. In some cases, financial aid may be jeopardized.

A student on academic probation will not be removed from academic probation until the student successfully completes a semester in good standing at ACPHS, either after or during the remediation of his/her deficiency as a fulltime student.

Academic dismissal usually is not invoked until academic probation has been imposed. However, academic dismissal may be recommended before probation when a student's academic record is significantly below average performance. Students who are academically dismissed from the College are not permitted to enroll in or attend courses at the College, or to earn credit toward degrees offered at ACPHS.

ACADEMIC APPEALS:

Students are permitted to appeal decisions made by the Academic Standing Committee. Appeal requests must be submitted in writing to the Dean of Students. The letter should contain a statement referencing the original decision by the Academic Standing Committee and an explanation addressing why it is being appealed. The basis for such appeals should involve cases of unusual or extenuating circumstances that directly impacted the student's ability to meet the ACPHS' academic standards. In the event that extenuating circumstances are identified, appropriate documentation supporting the assertion by a competent, qualified professional must be included when applicable. The College reserves the right to require further evaluation. Deadlines for appeal are January 5 following the fall semester, June 5 following the spring semester and August 20 following the summer semester. While there are deadlines for student appeals, appeals are heard on a rolling basis.

AP and Course Credit Transfer Policies:

The granting of transfer credit for an ACPHS course is at the discretion of the Department Chair or designee in which the course is offered. The substitution of courses, or waiving of course requirements, for a student is also at the discretion of the Department Chair or designee in which the student's program resides.

ACADEMIC RECOGNITION

The following **Honors for Achievement** are presented to enrolled students. Awards marked with an asterisk (*) are presented to graduates as part of Commencement exercises.

***American Chemical Society Award.** Given by the American Chemical Society for general excellence in the chemistry sequence by high GPA and faculty nominations.

***The Morris M. Daffner '32 Memorial Award for Excellence in Pharmacy Practice.** Established by his wife Beatrice and son Dr. Richard Daffner '63, in memory of Morris M. Daffner '32. Awarded to a graduating student who has shown excellence in pharmacy practice by faculty and preceptor nominations.

Claudia L. DelGiaccio Memorial Award. Given to a student with high scholastic standing in pharmacy courses and who is deemed worthy of the honor by faculty nominations.

Dr. Rudolph R. DelGiaccio '46 Memorial Prize. Given to a student deemed worthy of the honor; by faculty/staff nominations.

***Facts and Comparisons Award.** Awarded to a student for high academic achievement and outstanding communication skills by faculty and preceptor nominations

***Lilly Achievement Award.** The Eli Lilly and Co. award is given to a graduating student who demonstrates both scholastic success and exceptional qualities of leadership and professional attitude; by faculty/staff and preceptor nominations.

Dr. Lawrence H. MacDonald Memorial Award. Awarded by the American Chemical Society to the student with the highest standing in freshman chemistry.

***Ralph '59 and Mary Lou '60 Mancini Award.** Established in memory of Matthew Verderame, a professor of medicinal chemistry at ACPHS for 37 years. Presented to a student with financial need who demonstrates academic excellence in medicinal chemistry.

***William Mansfield Award.** A cash prize from a fund established under the will of Dean William Mansfield awarded to the pharmacy student who has the highest scholastic standing for the entire six years of the Pharm.D. program.

***Lucy M. Manvel Membership Awards.** Four memberships of one year each are awarded annually by the Northeastern New York Society of Hospital Pharmacists to P2 through P4 year students employed at a hospital pharmacy in the Northeast; by faculty and preceptor nominations. Two awards are presented at the Fall awards ceremony and two awards are given at graduation.

***Merck and Company, Inc. Awards.** Five sets of the Merck Index and Merck Manual are awarded to students having high scholastic standing in the Pharmacotherapy, Pharmaceutics, and Experiential sequences; by faculty and preceptor nominations.

***Mylan Pharmaceuticals Inc. Award.** Presented to a graduating student for excellence in pharmacy; by faculty and preceptor nominations.

***Natural Medicines Comprehensive Database Recognition Award.** Awarded to a graduating student who demonstrates interest in improving patient care and appreciation for an evidence-based approach to evaluating natural medicines; by faculty and preceptor nominations

***Patient Care Awards for Excellence in Experiential Education.** Four awards given to students who demonstrate exceptional clinical skills, dedication to patient care, and professionalism on Advanced Pharmacy Practice Experiences; by faculty and preceptor nominations.

***PSSNY Award.** A five-year membership in the Pharmaceutical Society of the State of New York awarded to a graduating student deemed worthy of honor and an active member of PSSNY; by faculty and preceptor nominations.

***US Public Health Service Award.** Awarded by the U.S. Public Health Service to a graduating pharmacy student for excellence in public health pharmacy practice. The student must be nominated by faculty, who complete a detailed nomination form. The Scholarship and Awards committee selects one nomination on behalf of the College to submit for consideration among the national pool of nominations. Only a few students from around the country are given this award.

Rho Pi Phi Beta Alumni Award. Awarded to an upperclassman of high scholastic standing who is deemed worthy of the honor; by faculty nominations.

***Rho Pi Phi Alumni Award.** Awarded to the graduating student who has made outstanding contributions to community welfare; by faculty/staff and preceptor nominations.

***Rhodes Award.** Four awards offered in memory of Earl D. Rhodes are given for general excellence; by faculty and preceptor nominations.

The James J. Roome Award. Given annually to the four students who have shown the greatest academic improvement at the end of the second, third, fourth, and fifth years.

The Robert J. Sherer Memorial Scholarship Award. A monetary award given by 5 friends is presented to the 5th year student with the highest cumulative average for the first four years at ACPHS.

***TEVA Pharmaceuticals USA Award.** Awarded to a graduating student with high scholastic standing; by faculty nominations.

***Walgreen's Diversity Scholarship.** Awarded to a student who has made significant efforts towards raising awareness or playing an active role in educating others about cultural competency and diversity-related matters impacting the pharmacy profession; by faculty and preceptor nominations.

Walmart Scholarship Award. Awarded to three pharmacy students who have financial need, high scholastic standing, show strong leadership qualities, and have a desire to enter community pharmacy practice. Students submit an essay with faculty or preceptor nominations, and top three students are selected by the Scholarship and Awards Committee.

PRESIDENT'S AWARDS

These eleven awards are given annually by the Office of the President solely on the basis of high academic achievement.

1. Highest GPA at end of first year
2. Second Highest GPA at end of first year
3. Highest GPA at end of second year
4. Second Highest GPA at end of second year
5. Highest GPA at end of third year
6. Second Highest GPA at end of third year
7. Highest GPA at end of fourth year
8. Second Highest GPA at end of fourth year
9. High Standing in mathematics (given to a student in third semester)
10. General Excellence (given to a student in the fifth semester); by faculty nominations and GPA.
11. General Excellence (given to a student in the seventh semester); by faculty nominations and GPA.

ADMISSIONS

FRESHMEN

Important Deadlines for Freshman Applicants

OCTOBER 1

Register with College Scholarship Service (CSS); Profile Application Code 2013 (*Early Decision only*)

NOVEMBER 1

Early Decision Application Deadline (*Early Decision applicants only*)

NOVEMBER 15

Profile Application Deadline to CSS (*Early Decision applicants only*)

FEBRUARY 1

Regular Decision Priority Deadline

Free Application for Federal Student Aid (FAFSA) Deadline (*All students*)

Deposit and Enrollment Confirmation Deadline (*Early Decision applicants only*)

MARCH 1

Regular Decision Notification

MAY 1

Deposit and Enrollment Confirmation

AUGUST 1

Wait List Response Date

EARLY DECISION

The Office of Admissions encourages qualified candidates who have selected ACPHS as their first choice to apply under the Early Decision program. Early Decision is a binding agreement and those offered admission would be expected to submit an enrollment confirmation and non-refundable tuition deposit by February 1. Early Decision candidates seeking consideration for financial aid must submit the Profile Application, available from the College Scholarship Service (CSS). To receive the application, students must register with and submit a fee to CSS at least four weeks before the November 15 filing deadline. Completed application materials must be returned to CSS for processing by November 15. Students seeking federal financial aid also must file the Free Application for Federal Student Aid (FAFSA). Completed applications should be filed by February 1.

EARLY DECISION FOR PHARM.D.

The Office of Pharmacy Admissions encourages highly qualified candidates who have selected the ACPHS Vermont campus as their first choice to apply Early Decision through PharmCAS. Applicants who are offered admission through Early Decision are expected to submit an enrollment confirmation form and a \$500 non-refundable tuition deposit within 2 weeks of receiving their acceptance letter. Students seeking federal financial aid must file the Free Application for Federal Student Aid (FAFSA). Completed financial aid applications should be filed by February 1.

REGULAR DECISION

To ensure full consideration and a place in the incoming class, we highly recommend that the completed application be submitted by the priority deadline of February 1. We will continue to process and accept applications after the priority deadline as long as space remains available.

INSTRUCTIONS FOR EARLY DECISION AND REGULAR DECISION

Students may apply using the following methods:

- Common Application Online: www.commonapp.org
- ACPHS Online Application: www.acphs.edu
- ACPHS Paper Application

The application must be completed and submitted to the College along with the required \$75 *non-refundable* fee. The following materials also must be sent to the Office of Admissions:

- Official high school transcript
- Two (2) letters of recommendation (one from your guidance counselor and one from a mathematics or science teacher)
- Scores from the Scholastic Aptitude Test (SAT) or American College
- Testing Program Examination (ACT), which also must include the writing section

The SAT code for the College is 2013. The ACT code is 2672. Applicants who have studied for fewer than ten years where English is the language of instruction are required to submit scores from the Test of English as a Foreign Language (TOEFL) or the Test of Spoken English (TSE). A minimum score on the TOEFL of 474 paper-based (70% of the maximum score of 677), or 84 Internet-based (70% of the maximum score of 120); and a minimum of 50 on the TSE must be achieved to be considered for admission. Applicants must be at least 16 years old and must present evidence of graduation from an approved or accredited secondary school.

The course of study must have included the following college preparatory coursework:

- ✓ English, 4 years 4 units
- ✓ Mathematics, 4 years (including pre-calculus) 4 units
- ✓ Science, 3 years (including chemistry) 3 units
- ✓ Academic college preparatory electives 6 units

Note: Physics and/or calculus are recommended

REQUIRED HEOA DISCLOSURE FOR UNDERGRADUATE ADMISSIONS

The Office of Undergraduate Admissions will confirm all students' transcripts that arrive from a high school with a CEEB code, as well as the high school seal and/or signature. If a transcript is from a high school that lacks a CEEB code or seal/signature, the admission office will investigate to confirm the school is recognized by the state department of education or home school association. The Office of Undergraduate Admissions requires a final and official copy of the student's transcript in the admission verification process. If a diploma is determined invalid, a GED may be required for admission consideration. International students must submit a copy of the completed Foreign Education Credential Evaluation Form from the World Education Service (WES). Transfers students who have not completed a previous college degree are required to submit an official high school transcript. Should a discrepancy be found through the Institutional Summary Information Report (ISIR) the Office of Financial will reach to the Office of Undergraduate Admissions for follow up.

Applicants are required to select a degree program when completing an application for admission. Applicants will be processed as long as space remains available in the class. Once a student is notified of acceptance, a non-refundable deposit of \$400, along with the signed Enrollment Confirmation Form, will be required to reserve a place in the incoming freshman class as long as space remains available. In the event that enrollment exceeds

capacity, ACPHS reserves the right to return the admission deposit based on the date received. Accepted freshmen applicants must complete their senior year of high school successfully and submit a final transcript and all required preregistration forms to the Office of Admissions prior to enrollment. Failure to submit a final transcript and all required forms may result in the withdrawal of a student's acceptance. The College reserves the right to use a wait list for qualified students.

Note: A person who has been convicted of a misdemeanor or felony related to drug use or sale may not be eligible for the pharmacy licensing examination. To determine eligibility, contact the New York State Board of Pharmacy, Cultural Education Center, Room 3035, Albany, NY 12230, or online at www.op.nysed.gov/pharm.htm.

ADVANCED PLACEMENT (AP), COLLEGE LEVEL EXAMINATION PROGRAM (CLEP) AND INTERNATIONAL BACCALAUREATE DIPLOMA PROGRAM (IB)

ACPHS grants advanced standing in the form of credit hours to entering students who, on the basis of performance on the College Board Advanced Placement Examinations, demonstrate proficiency in English, literature, calculus, general chemistry, general biology, statistics, physics and selected humanities courses. A minimum score of 4 must be obtained to receive course credit. It is important to note, however, that it is not always in the student's best interest to have credit awarded (especially for science courses). To receive credit for the College Level Examination Program (CLEP) examinations, a score of 70 or better must be achieved. CLEP credits will only be accepted for elective courses. The College recognizes the International Baccalaureate Diploma Program (IB) and grants up to six elective course credits for superior performance on the Higher Level examinations, provided that the exams cover fields of study represented by the College's academic offerings. Students who have completed the IB curriculum ordinarily will be granted, on matriculation at ACPHS, one course credit for each score of 6 or 7 on the Higher Level examinations. These credits may be used to reduce the number of elective courses required for graduation, but normally may not be used to satisfy any other degree requirement.

EARLY ADMISSION

Applicants who complete all freshmen admission requirements at the end of the third year of high school will be considered on the same basis as four-year graduates.

DEFERRED ADMISSION

The Deferred Admission program allows accepted applicants to request a delay of their enrollment at the College for one academic year. Students must send a written request to the Office of Admissions. The Office of Admissions reserves the right to deny requests for Deferred Admission. Students granted Deferred Admission are required to pay a *non-refundable* deposit to reserve their place in the class of the following year.

RETURN OF TITLE IV FUNDS POLICY

Albany College of Pharmacy and Health Sciences uses the revised policy of Return of Title IV Funds as amended in section 484B of the Higher Education Act of 1965. Each student receiving Title IV assistance will have his or her financial award recalculated to adhere with federal regulations. Federal funds will be returned when required by law. The Return of Title IV Funds (Return) regulations dictate the statutory schedule used to determine the amount of Title IV funds (federal student aid) a student has earned as of the date he or she ceases attendance. The amount of Title IV program assistance earned is based on the amount of time the student spent in academic attendance; it has no relationship to the student's incurred institutional charges. Up through the 60 percent point in each payment period or period of enrollment, a pro rata schedule is used to determine the amount of Title IV funds the student has earned at the time of withdrawal. After the 60 percent point in the payment period or period of enrollment, a student has earned 100 percent of the Title IV funds. The Return regulations do not prohibit a school from administering its own refund policy or complying with refund policies required by state or other outside agencies. Although an institutional, state or agency refund policy will determine the charges a student will owe after withdrawing, those policies will not affect the amount of aid the student has earned under the Return calculation.

FINANCIAL AID

Many students will be assisted by grants, scholarships and loans from state and federal governments, the College and other private agencies. All students are expected to apply for federal and state grants, scholarships and loan programs for which they may be eligible. Approximately 89 percent of current students have received some assistance. Total assistance for 2010-2011: Grants and Scholarships\$8,038,909; Loans – \$29,530,343.

FEDERAL STUDENT AID APPLICATION PROCESS

Students must file the Free Application for Federal Student Aid (FAFSA) each year in order to determine financial aid eligibility. Students may file the FAFSA online at www.fafsa.ed.gov. Students without internet access may request a paper FAFSA by calling 1-(800) 4FED-AID. The Federal School Code for Albany College of Pharmacy and Health Sciences is **002885** and must be reported on the FAFSA. New students are required to file the FAFSA by February 1 for the following academic year. Returning students are required to file the FAFSA by March 1 for the following academic year. Once the FAFSA is processed, the *Institutional Student Information Record* (ISIR) is made available electronically to the schools the student listed on the FAFSA and the *Student Aid Report* (SAR) is made available to the student online.

SPECIAL CONSIDERATIONS FOR DOCTOR OF PHARMACY STUDENTS

Students may be admitted to the College in the first or second pre-pharmacy years or the first professional year in the Doctor of Pharmacy program. The Doctor of Pharmacy program is registered as and considered undergraduate level for the first two pre-professional years. It is important to note that the first and second professional years are also considered undergraduate level for financial aid purposes. Students will be considered graduate/professional level only for the third and fourth professional years when determining financial aid eligibility. Therefore, student eligibility for federal and state scholarships, grants and loans will be determined for all Doctor of Pharmacy students using this framework. Completion of a prior degree is not a determinant of undergraduate or graduate status for financial aid eligibility. When completing the Free Application for Federal Student Aid (FAFSA) for the upcoming year, Doctor of Pharmacy students enrolled in the pre-professional, first or second professional years must report grade level and degree level in the undergraduate categories. Doctor of Pharmacy students in the third and fourth professional year must report grade level and degree level as graduate/professional.

ELIGIBILITY

The student's **Cost of Attendance** (COA) at the College is determined, within guidelines established by federal law. The student's COA includes:

- tuition and fees
- room and board expenses while attending school
- allowances for books and supplies (including cost for required purchase of laptop computer in the first year)
- transportation
- personal expenses (shampoo, toothpaste, laundry expense, etc.)
- loan fees for federal student loans (if applicable)
- dependent-care costs (if applicable)
- costs related to a disability (if applicable)

The student's **Expected Family Contribution** (EFC) appears on the *Institutional Student Information Record* (ISIR) or *Student Aid Report* (SAR). The EFC is used to determine whether a student is eligible for federal student aid. The EFC is calculated using a formula established by Congress to determine the amount that a student's family is expected to contribute toward the student's cost of attendance.

The student's **Unmet Financial Need** (UFN) is determined using the formula: $COA - EFC = UFN$. Students must have unmet need in order to qualify for need-based aid. Need-based awards are limited and offered on a first-come, first-served basis to students who meet the College's financial aid deadlines.

VERIFICATION POLICY

According to the College's policy, the Office of Financial Aid is required to review all ISIR/SAR records selected for verification review by the federal processor. In addition, all new students are institutionally selected for verification review. Students selected for verification must submit documentation to support certain information reported on the FAFSA. Students selected for verification or correction must submit copies of student, spouse and/or parent(s) previous year's federal tax returns and W-2 forms with a federal verification worksheet to the Office of Financial Aid by May 1. Students subsequently selected for verification after May 1 are required to submit these documents within 60 days of written notification from the Office of Financial Aid. The Office of Financial Aid cannot process financial aid awards for students who do not meet the above deadlines.

SATISFACTORY ACADEMIC PROGRESS POLICY

In addition to filing the required forms and demonstrating unmet financial need, students must continue to maintain satisfactory academic progress to remain eligible for federal, state and institutional financial aid awards. Students placed on academic probation at the end of the academic year will have one semester of grace before losing financial aid eligibility. Academic progress is measured yearly.

See the School of Pharmacy and Pharmaceutical Sciences for Entry Options and progression requirements for the Doctor of Pharmacy Program

TABLE 1. STANDARDS OF SATISFACTORY ACADEMIC PROGRESS

	Min. Credits Earned	Minimum GPA
<i>Year 1</i>		
1st Semester	0	0.0
2nd Semester	28	2.0
<i>Year 2</i>		
1st Semester	42	2.0
2nd Semester	56	2.0
<i>Year 3</i>		
1st Semester	70	2.0
2nd Semester	84	2.0
<i>Year 3 (Pharm.D.)</i>		
1 st Semester	70	2.5
2 nd Semester	84	2.5
<i>Year 4</i>		
1st Semester	98	2.0
2nd Semester	112	2.0
<i>Year 5</i>		
1st Semester	126	2.0
2nd Semester	140	2.0
<i>Year 6</i>		
1st Semester	154	2.0
2nd Semester	168	2.0

STANDARDS OF SATISFACTORY ACADEMIC PROGRESS

Students who receive financial aid must make satisfactory academic progress to remain eligible for federal, state and institutional aid. This section outlines satisfactory academic progress requirements pertaining to financial aid eligibility. These requirements are independent of the Academic Progression requirements. *(See Academic Regulations for more information.)*

Standards of Academic Progress (SAP)

Federal regulations require the Office of Financial Aid to monitor the academic progress of students attending Albany College of Pharmacy and Health Sciences. It is important to note Standards of Academic Progress (SAP) are separate from, and in addition to, the Academic Standing policy and progression requirements established in the Academic Regulations section of the catalog. All students regardless of major, grade level and course load will be evaluated with the same standards for federal and institutional aid eligibility.

Frequency of SAP Evaluations

The Office of Financial Aid will review SAP annually in June, after spring semester grades are posted. This standard is stricter than the college's Academic Standing policy for students who are not receiving Title IV Assistance.

Qualitative Standard

All students must be in good academic standing with the College. Students enrolled in a Bachelor's of Science degree or the Doctor of Pharmacy degree must maintain a minimum cumulative grade point average (GPA) of 2.0 at the end of the academic year. Beginning in the 2011-2012 year, all Doctor of Pharmacy students must have a minimum cumulative grade point average (GPA) of 2.5 to graduate. Students enrolled in a Master's degree program must maintain a minimum cumulative grade point average (GPA) of 3.0 at the end of the academic year.

Quantitative Standard (Pace of Progression)

All students must progress toward degree completion at a defined cumulative rate. Completed coursework is defined as any course for which a student receives a passing grade.

Doctor of Pharmacy Example:

	Fall Semester	Spring Semester	Total Attempted (Cumulative)	Must earn at least (Cumulative)
1 st Year	17	18	35	35 hours x 50% = 18 credit hours
2 nd Year	18	17	70	70 hours x 67% = 47 credit hours
3 rd Year	16	18	104	104 hours x 67% = 70 credit hours
4 th Year	18	17	139	139 hours x 67% = 93 credit hours
5 th Year	18	18	175	175 hours x 85% = 149 credit hours
6 th Year	18	18	211	211 hours x 95% = 200 credit hours

Master's Degree Example:

	Fall Semester	Spring Semester	Total Attempted (Cumulative)	Must earn at least: (Cumulative)
1 st Year	9	9	18	18 hours x 67% = 12 credit hours
2 nd Year	9	9	36	36 hours x 67% = 24 credit hours

Bachelor's Degree Example:

	Fall Semester	Spring Semester	Total Attempted (Cumulative)	Must earn at least : (Cumulative)
1 st Year	16	17	33	33 hours x 67% = 22 credit hours
2 nd Year	16	17	66	66 hours x 67% = 44 credit hours
3 rd Year	15	19	100	100 hours x 67% = 67 credit hours
4 th Year	16	16	132	132 hours x 67% = 88 credit hours

Process for Incompletes, Withdrawals, Repetitions, and Transfer of credit from other schools

Course incompletes and withdrawals are counted as attempted coursework when reviewing SAP. Neither repeated grades nor original grades earned at other colleges will contribute to the student's GPA at ACPHS.

Transfer credits will be counted in the quantitative status but not the qualitative status. Students who change their major will be placed on the chart for the semester in which they are entering.

Loss of Financial Aid Eligibility

If students fail to maintain SAP, they will lose eligibility until they raise their cumulative GPA to the minimum standard and/or by making up the credit deficiency.

Appeals

Students who fail to make SAP due to very serious circumstances that caused a major disruption to their ability to successfully complete their course work may appeal the loss of that aid to the Director of Financial Aid.

Students must submit a letter to the Director of Financial Aid along with documentation to substantiate the unusual or extraordinary circumstance that prohibited the student from making SAP. This must include a comprehensive description of the circumstance(s) and documentation from at least two qualified persons who can verify the information.

In addition, students must explain what has changed with their situation that will allow the student to meet SAP requirements at the next evaluation. In cases of student injury, student illness or death of an immediate family member, the Director of Financial Aid may decide to review the appeal before proceeding to the Financial Aid Appeals Committee. The student must submit a letter of appeal and associated documentation to his/her case by August 1. Within 2-4 weeks of receiving the letter, the Financial Aid Appeals Committee will review the appeal, make a recommendation and send a letter of response.

Financial Aid Probation

The status of probation is assigned to a student who is failing to make SAP ***and*** who successfully appeal their loss of financial aid eligibility. Students in this status will have their financial aid reinstated for one payment period. At the end of that payment period students will be reevaluated for federal and institutional aid eligibility.

Reestablishing aid eligibility

If students fail to maintain SAP, they may regain eligibility by raising their cumulative GPA to the minimum standard and/or by making up the credit deficiency without the benefit of federal or institutional aid.

Maximum Time Frame for Degree Completion

Student must complete their degree within the maximum timeframe of 150% of the published length of the academic program. Students enrolled in the Doctor of Pharmacy Program must complete their education objective within a period of nine years (6 years x 150%). A student enrolled in any of the Bachelor's degree programs must complete his/her educational objective within a period of six years (4 years x 150%). A student enrolled in a Master's degree program must complete his/her educational objective within a period of 150% of the length of their program.

Financial Aid Waitlist Process

The Office of Financial Aid uses a wait list process to award funds that become available due to student attrition. Students may request to be placed on the wait list by submitting the Financial Aid Wait List Request Form to the Office of Financial Aid on or after August 1. This form is available on the ACPHS web site. Wait list requests will be reviewed by the Financial Aid Appeals Committee late in the spring semester, on a first-come, first-served basis, and must be filed every year.

Consortium Agreement Policy with Other Institutions

The Office of Financial Aid adheres to the Hudson Mohawk Association membership policy concerning cross-registration as our consortium agreement policy. Students interested in registering for classes at member institutions during the fall and spring semesters may contact the registrar at ACPHS for additional information. Students approved to attend a course at member institutions during the fall and spring semesters will not be charged additional tuition for the coursework. The association does not permit summer semester attendance.

Students interested in applying for financial aid for approved coursework during the summer semester must complete a separate consortium agreement form, available in the Office of Financial Aid.

Special considerations concerning students enrolled in summer sessions and/or the fourth professional year of the Doctor of Pharmacy program:

- Summer sessions I and II are combined to reflect one summer semester for financial aid purposes.
- Federal student aid eligibility for the summer semesters is determined using the summer as a header term for the upcoming award year. For example, students would file the 2011-2012 FAFSA for financial aid during the summer 2011 semester.
- The financial aid award year begins July 1, 2011 for the 2011-2012 academic year. Therefore, federal funds for summer semester will not be disbursed until July 1 or thereafter. Funds may be disbursed as early as July 1 for students enrolled in six or more credits in Summer Session I. Funds will be disbursed after the start of Summer Session II for students enrolled in less than six credits in Summer Session I.
- All student loans (federal or private) are disbursed each academic year using multiple disbursements. Federal Stafford loans for a given academic year (two semesters) are disbursed in two equal installments, one for each semester. Disbursement of funds for the second semester cannot occur until after the mid-point of the loan period.
- The academic year for students in the fourth professional year of the Doctor of Pharmacy program encompasses pharmacy practice experience rotation modules A – I for the 2011-2012 year. Module J will be used for make-up rotations only. Fall 2011 semester includes modules A – E; spring 2011 semester includes modules F – I. Institutional aid will be disbursed after July 1, 2010. Student aid for spring 2011 semester will be disbursed after the mid-point of the loan period. (See calendars on page 5 and 6 of the Catalog for more details.)
- Private student loans for summer students are certified for one calendar year. Funds are disbursed in three installments, one each for summer, fall and spring semesters during the loan period. Disbursements may not be divided equally if enrollment is less than fulltime during the summer semester. Students will be advised of the disbursement amounts on the financial aid award letter.

Special considerations for student loan recipients who are enrolled in the Cytotechnology degree program:

- The spring semester includes the experiential portion on the program.
 - All student loans (federal or private) are disbursed each academic year using multiple disbursements. Federal Stafford loans for a given academic year (two semesters) are disbursed in two equal installments, one for each semester. Disbursement of funds for the second semester cannot occur until after the mid-point of the loan period.

GRADUATION RATES

In compliance with the Student Right to Know Act, ACPHS is pleased to share information on our graduation rates. The graduation rate for students who entered ACPHS in Fall 2004 (2004 cohort) as first-time, full-time, degree-seeking students and graduated within six years of attendance is 64%. Six years represents 150% of normal completion time for those seeking a bachelor's degree and 100% of normal time for those seeking a first professional degree. The graduation rate for students who transferred into ACPHS in 2004 was 74%. Transfer students enter with prior college experience and so may require fewer semesters to complete their degree programs. The 2004 cohort is the most recent cohort for which a six-year graduation rate is available.

FIRST-YEAR RETENTION RATES

The chart below represents ACPHS's first-year retention from Year One to Year Two for the last five academic years.

FIRST-YEAR RETENTION RATES (Students Progressing from Year One to Year Two)

Academic Year	Total Enrolled	Withdrew Passing	Academic Dismissals	Total Attrition	Academic% Retention*	Total Retention**
06-07	255	16	31	47	87.8	81.6
07-08	292	13	42	55	84.9	81.2
08-09	315	21	10	31	96.9	90.2
09-10	249	21	32	53	86.0	78.7
10-11	260	21	17	38	93.4	85.3
Avg.	274.2	17	26.4	44.8	89.8	83.4

* % academic Retention is based on an adjusted total enrollment that excludes students who withdrew passing.

** % Total Retention is based on the total attrition number divided by the total enrolled number. Total Enrolled – based on enrollment as of October 15th.

First-year retention rates are important because they measure the rate at which entering freshmen in a fall semester enroll the following fall semester. First year retention is associated with many factors (e.g. high school course taking, ACT and SAT scores, socioeconomic background, ethnicity, etc.).

Research has found that students are more likely to drop out of postsecondary education during the first year than any other time. Therefore, implementation of policies that help to increase retention rates either within institutions or through transfer, increase the likelihood of students progressing to graduation.

Comparison of First-Year Retention Rates, 2008	
	Total Retention
Albany College of Pharmacy and Health Sciences	90.2
New York State	80.8
United States	74.7

Source: The National Center for Higher Education Management Systems. Web site: higherinfo.org

As you can see, from the above comparison chart, the Albany College of Pharmacy and Health Sciences' first-year retention rates are considerably higher than both New York state and the nation.

AP and Course Credit Transfer Policies:

The granting of transfer credit for an ACPHS course is at the discretion of the Department Chair or designee in which the course is offered. The substitution of courses, or waiving of course requirements, for a student is also at the discretion of the Department Chair or designee in which the student's program resides.

Non-Matriculated (Non Degree Seeking) Student Policy

Non-matriculated status permits students to take courses to explore degree options, for personal enrichment, professional development, or fulfilling degree requirements for another institution, which would include cross-registration. Non-matriculated status is reserved for students who are not seeking a degree at the time of entry.

Non-matriculated students do not follow the admission requirements of matriculated students. The non-matriculated student status is designed to allow any interested individual to attend college credit courses without declaring a major or seeking a degree. Students must have the pre-requisites for any course they wish to register for, permission of the instructor and permission of the Dean of Students.

Due to visa requirements, International students are not eligible for non-matriculated status. Non-matriculated students do not receive federal or institutional financial aid.

Students may register up to a maximum of 12 credits as a non-matriculated student. If they wish to continue courses at the College, they would need to apply for matriculated status through the appropriate admissions process. For further information regarding registration for non-matriculated students, please contact the Registrar's office.

TUITION, FEES AND EXPENSES

Please note that students entering P1 in the fall of 2011 and after will be paying a differential tuition equal to the Vermont tuition.

Direct billed tuition, fees, residence hall and meal plan costs for the 2010-2011 academic year:

	Tuition (Albany campus)	\$24,500
1	Tuition (Vermont campus)	\$28,830
2	Professional Fee (Albany campus)	\$550
3,4	Student Activity Fee	\$250
3	Health Center Fee (Albany campus)	\$130
3	Health Center Fee (Vermont campus)	\$170
3	Orientation Fee – Freshmen	\$275
3	Orientation Fee – Transfers	\$175
3	Information Technology Fee (undergraduate)	\$250
3	Information Technology Fee (MS programs only)	\$110
	Pharmacy Practice Experience Reschedule Fee (charged per pharmacy practice experience rescheduled)	\$250

STUDENT HOUSING (ALBANY):

	Notre Dame or South Hall	\$6,200
	Holland/Princeton Suites – 2 Bedroom	\$7,500
	Holland/Princeton Suites – 4/5 Bedroom	\$6,700
	Resident Activity Fee (South Hall, Notre Dame Hall, Holland and Princeton Suites)	\$40
5	Meal Plan (Albany)	\$3,260
	Meal Plan (Vermont)	\$600
6	Market Insurance Fee	\$460
	International Student Fee	\$200
	Tablet Laptop Purchase	\$1,775.85

¹ Full-time undergraduate and graduate tuition at Albany campus is \$24,500 for the 2011-2012 academic year (fall and spring semesters). Beginning in the 2011-2012 year, tuition for students enrolled in the first professional year of the Doctor of Pharmacy program will be equal at the Albany and Vermont campuses.

² Professional fee is billed to Doctor of Pharmacy students in years three through six at Albany campus. Professional fee included in tuition at Vermont campus. Beginning in the 2011-2012 year, the professional fee will be included in tuition for students enrolled in the first professional year of the Doctor of Pharmacy program at the Albany campus.

³ Non-refundable after the first day of classes. Required for all students.

⁴ Student activity fee for part-time students enrolled in the MS programs is \$70

⁵ Amount will vary based on choice of meal plan option. All students in the Notre Dame and South Hall residence facilities are required to purchase the \$3,260 meal plan.

⁶ Assessed to all students and waived for students who provide proof of other insurance by the deadline.

Parking Permit Fees on Next Page.

PARKING PERMIT FEES:

Albany Commuter	\$240
Albany Resident (9 month)	\$320
Vermont Commuter	\$240

Notes: The purchase of a tablet laptop from the College is not required. Incoming freshmen who choose NOT to participate in the ACPHS Tablet Program are directed to purchase a laptop with the following specifications: Tablet notebook with Microsoft Windows 7. Tuition is charged at a rate of \$815 per credit hour for class years one through six for enrollment in undergraduate/graduate courses on a part-time basis (11 credit hours or less) at the Albany campus. Tuition is charged at a rate of \$961 per credit hour at the Vermont campus. The fee for auditing is the same as that charged for part-time coursework.

REQUIRED IMMUNIZATIONS FOR ATTENDANCE

Vaccine-preventable diseases are a major health concern on college campuses. Since immunization is widely regarded as one of the world's most effective tools for protecting public health, Albany College of Pharmacy and Health Sciences has established a pre-entrance Health Immunization Policy for all new incoming students. Failure to comply with health policies will result in an administrative HOLD on the student's record. This will block the student's ability to register, attend classes, or receive grades. Documentation of the following is required prior to registration for classes:

1. NYS Public Health Law 2165 requires post-secondary students to show immunity to **Measles, Mumps and Rubella** (2 doses of MMR, or equivalent for each disease, as outlined below - or documented physician-diagnosed disease is acceptable for Measles or Mumps.) Persons born prior to January 1, 1957 are exempt from this requirement.
2. NYS Public Health Law 2167 requires post-secondary institutions to distribute information about **meningococcal disease and vaccination** to students enrolled for at least six (6) semester hours (or the equivalent per semester), or parents/guardians of students under the age of 18. The institution is required to maintain a record of the following for each student:
 - a. Certificate of Immunization for meningococcal meningitis disease; **or**
 - b. A response to receipt of meningococcal meningitis disease and vaccine information signed by the student or the student's parent or guardian;

AND, EITHER

 - c. Self reported or parent recall of meningococcal meningitis immunization within the past 10 years; or
 - d. An acknowledgement of meningococcal disease risks and refusal of meningococcal meningitis immunization signed by the student or student's parent or guardian.
3. **Varicella/Chicken Pox** – proof of vaccine series, positive (reactive) antibody titer or history of disease.
4. **Hepatitis B Vaccine** (traditional three doses, 2 doses of Recombivax or 4 accelerated doses of Twinrix)

ACCEPTABLE PROOF OF IMMUNITY:

Measles:

Students born on or after January 1, 1957 must submit proof of immunity to measles. One of the following is required:

- The student must submit proof of two doses of live measles vaccine: the first dose given no more than 4 days prior to the student's first birthday and the second at least 28 days after the first dose; **or**
- The student must submit serological proof of immunity to measles. This means the demonstration of measles antibodies through a blood test performed by an approved medical laboratory; **or**
- The student must submit a statement from the diagnosing physician, physician assistant or nurse practitioner that the student has had measles disease; **or**
- The student must submit proof of honorable discharge from the armed services within 10 years from the date of application to the institution. The proof of honorable discharge shall qualify as a certificate enabling a student to attend the institution pending actual receipt of immunization records from the armed services; **or**
- If a student is unable to access his/her immunization record from a health care provider or previous school, documentation that proves the student attended primary or secondary school in the United States after 1980 will be sufficient proof that the student received one dose of live measles vaccine. If this option is used, the second dose of measles vaccine must have been administered within one year of attendance at a post-secondary institution.

Mumps:

Students born on or after January 1, 1957 must submit proof of immunity to mumps. Only one of the following is required:

- The student must submit proof of one dose of live mumps vaccine given no more than 4 days prior to the student's first birthday; **or**
- The student must submit serological proof of immunity to mumps. This means the demonstration of mumps antibodies through a blood test performed by an approved medical laboratory; **or**
- The student must submit a statement from the diagnosing physician, physician assistant, or nurse practitioner that the student has had mumps disease; **or**
- The student must submit proof of honorable discharge from the armed services within 10 years from the date of application to the institution. The proof of honorable discharge shall qualify as a certificate enabling a student to attend the institution pending actual receipt of immunization records from the armed services.

Rubella:

Students born on or after January 1, 1957 must submit proof of immunity to rubella. Only one of the following is required:

- The student must submit proof of one dose of live rubella vaccine given no more than 4 days prior to the student's first birthday; **or**
- The student must submit serological proof of immunity to rubella. This means the demonstration of rubella antibodies through a blood test performed by an approved medical laboratory (Since rubella rashes resemble rashes of other diseases, it is impossible to diagnose reliably on clinical grounds alone. Serological evidence is the only permissible alternative to immunization.); **or**
- The student must submit proof of honorable discharge from the armed services within 10 years from the date of application to the institution. The proof of honorable discharge shall qualify as a certificate enabling a student to attend the institution pending actual receipt of immunization records from the armed services.

For more specific disease information regarding measles, mumps, rubella and meningococcal disease, refer to the New York State Department of Health website at <http://www.health.state.ny.us/> or the Centers for Disease Control website at <http://www.cdc.gov/>.

Other Immunizations:

Although not required, the following are strongly recommended, as they will likely be requirements for clinical rotations:

Tetanus, Diphtheria, Pertussis (DTP) - within 10 years of last injection, and must be valid through the duration of all clinical rotations (if applicable)

Flu Vaccine – all students who will be on rotation with direct patient care responsibilities (e.g. hospitals, outpatient clinics, long-term care facilities) are recommended to obtain an annual flu vaccination, dependent on national vaccine supply.

Cytotechnology Program Candidates

A vision exam (including a color blindness test) is required for all Cytotechnology students. The exam needs to be signed and completed by a physician or ophthalmology technician.

In Process

A student is considered “in process” and allowed to attend classes if he/she has presented documentation that shows the student is in the process of completing the immunization requirements of PHL Section 2165. To be "in process" the student must have received at least one dose of live measles virus vaccine, have complied with the requirements for mumps and rubella, and have an appointment to return to a health practitioner for the second dose of measles if this appointment is scheduled no more than 90 days since administration of the first dose of measles virus vaccine.

A student can be considered in process of complying with PHL Section 2167 regarding meningococcal disease until a 30 day grace period has elapsed. The 30 day grace period may be extended to 60 days if a student can show a good faith effort to comply with PHL Section 2167. If a student is granted the extended grace period, then exclusion begins immediately after the 60 days elapses.

Immunization Documentation

Immunization documentation should be prepared by a physician, physician assistant or nurse practitioner, and shall specify the vaccines and give the dates of administration. It may also show physician-verified history of disease, laboratory evidence of immunity or medical exemption. This includes documents such as a certificate from a physician, a copy of the immunization portion of the cumulative health record from a prior school, a migrant health record, a union health record, a community health plan record, a signed immunization transfer card, a military dependent's "shot" record, the immunization portion of a passport, an immunization record card signed by a physician, physician assistant or nurse practitioner, or an immunization registry record.

EXEMPTIONS FROM IMMUNIZATION REQUIREMENTS

Medical Exemption

If a licensed physician, physician assistant, or nurse practitioner, or licensed midwife caring for a pregnant student certifies in writing that the student has a health condition which is a valid contraindication to receiving a specific vaccine, then a permanent or temporary (for resolvable conditions such as pregnancy) exemption may be granted. This statement must specify those immunizations which may be detrimental and the length of time they may be detrimental. Provisions need to be made to review records of temporarily exempted persons periodically to see if contraindications still exist. In the event of an outbreak, medically exempt individuals should be protected from exposure. This may include exclusion from classes or campus.

Religious Exemption

A student may be exempt from vaccination if, in the opinion of the institution, that student (or student's parent(s) or guardian of those less than 18 years old) holds genuine and sincere religious beliefs which are contrary to the practice of immunization. The student requesting exemption may or may not be a member of an established religious organization. Requests for exemptions must be written and signed by the student if 18 years of age or older, or parent(s), or guardian if under the age of 18. The institution may require supporting documents. It is not required that a religious exemption statement be notarized. In the event of an outbreak, religious exempt individuals should be protected from exposure. This may include exclusion from classes or campus.

Exclusion

"Exclusion" is the process whereby noncompliant students are not permitted continued attendance at the institution; whereas, "attendance" means the student's physical presence on campus (i.e., exclusion from classes, dorm residence and other curricular and extra-curricular campus activities). Exclusion should begin immediately after a 30 day grace period as stipulated under PHL Section 2165 (measles, mumps and rubella requirements), or after 45 days if a student is from out of state or from another country and can show a good faith effort to comply, or when a disease outbreak occurs.

For institutions to be in compliance with PHL Section 2167 (meningococcal meningitis response form), exclusion of students should begin immediately after the 30 day grace period elapses. The 30 day grace period may be extended to 60 days if a student can show a good faith effort to comply with PHL Section 2167. If a student is granted the extended grace period, then exclusion begins immediately after the 60 days elapse.

Students on Clinical Rotation

Clinical rotations are designed to build on students' academic base and provide them with a wide exposure to various pharmacy practice/clinical laboratory experience in order for students to further develop skills in making independent judgments and integrating fundamental knowledge into clinical applications. The following is required for all students who will be participating in a clinical rotation as part of their college degree. Documentation must be provided to the Office of Experiential Education annually, prior to starting the supervised clinical experience. ALL students who will be participating in clinical rotations must have the documentation below (PPD and PE) completed within a specific timeframe prior to the end of the academic year preceding the start of rotations (timeframe will be communicated to students at an appropriate time during the academic year.) Pharm.D. candidates will need to complete this documentation annually starting with the 1st professional year (P1) through the end of the 3rd professional year (P3). Clinical Lab Sciences and Cytotechnology students will only need to complete the documentation once at the end of the academic year prior to starting rotations.

The dates MUST be adhered to in order to ensure the documentation remains in effect through the duration of the ensuing pharmacy practice experience year.

Tuberculosis (TB) Infection Screening (TST/Mantoux or IGRA):

- If your TB screening result is positive, you must receive a chest x-ray and provide the College with documentation of both the results and the x-ray report, as well as any follow-up treatment you receive.
- If you have had a positive TB screening in the past, you need to provide a copy of those results, along with a copy of a negative chest x-ray report, and any follow-up treatment you received.
- Those excluded from skin testing due to prior positive reaction or past disease must be evaluated during their annual physical exam for active signs of the disease.

Physical Exam: An annual physical exam, valid for a 12 month period, is required.

Notes:

- **Varicella/Chicken Pox** – proof of immunity status was required upon admission, but a positive titer or physician-diagnosed history of disease *may* be required by some rotation sites (proof of vaccine series would not be acceptable.) Doctor of Pharmacy students will need to verify the specific requirements for each rotation site through the E*Value system.

All students must **keep a copy** of the above documentation, as it may be requested by their practice sites. Failure to provide sufficient documentation prior to rotations puts a student at risk for being removed from a rotation. If a student is removed for this reason, he/she will be rescheduled for a later rotation and placed at any available rotation site (not necessarily the choice of the student.) This reschedule will incur a \$250 fee, which is at the student's expense.

Additional Rotation Requirements

Some clinical affiliation sites have additional requirements that must be documented prior to starting that specific rotation (e.g. blood titer as opposed to proof of vaccination.) These additional requirements would be documented in the PEMS database system, as well as communicated to the student in advance. It is the student's responsibility to ensure the requirements are met prior to commencement of pharmacy practice experience, and will also be at the student's expense (except when facilitated by the rotation site.) If the additional requirements are not met prior to start of pharmacy practice experience, the student will not be allowed to begin the rotation until they have been fulfilled.

Receiving Vaccinations

It is the obligation of the student to complete required immunizations/proof of immunity prior to starting classes. Due to insurance regulations, students should go through their primary care physician to do so, if possible. If a series of vaccinations/blood tests is needed, and the student cannot complete the series through their primary care physician within the specified time for that series (e.g. student is from out of state/country), they can contact:

ALBANY CAMPUS

Student Health Center (SHC) – *a partnership of Albany Medical College, Albany Law School and ACPHS* (located at 25 Hackett Blvd, First Floor, in the Albany Medical Center South Campus on the corner of Samaritan Road and Hackett Boulevard, directly across the street from South Hall; Ph: 518-264-0900.) The SHC will be open Monday through Friday from 8am through 6pm and on Saturdays from 8am to noon. Practitioners will also be available by phone 24 hours a day at 518-264-0900. **Students must call 518-**

264-0900 to make an appointment to be seen. Students who are insured through the College's insurance provider, Markel, will receive three office visits free of charge during the fall and spring semesters (not to include charges for any other services rendered). Additional visits will incur the office visit charge which will be billed to Markel. Students insured through other providers will have their insurance provider billed for an office visit, consistent with the benefit plan provided. Students will not be required to pay for services at the time they are rendered. SHC will file the necessary claims with insurance providers. Students will be responsible for payment of any balance due after the insurance provider's payment. Students are asked to bring their ACPHS picture ID and their insurance card with them to every visit, to protect against identity theft and insure eligibility.

Albany Family Practice Community Care Physicians (located at 2 Clara Barton Drive, behind the Notre Dame and South Hall residence facilities; Ph: 518-207-CARE [2273].) However, the student should call their insurance provider to ensure coverage of the requested service prior to making an appointment. Students also have to be established as a patient with that facility, which would mean having to get a physical exam from a provider at this facility, even if they recently had an examination (which insurance may not cover.)

Albany County Department of Health Immunization Program (located at 175 Green Street; Ph: 518-447-4589.) If a student has health insurance, there is a cost per immunization (ranging from \$15-\$97.) If a student does not have health insurance, there is an administrative cost of \$15 for PPD, MMR and Tetanus. All other vaccinations would incur their normal cost. Any ACPHS student who resides in Albany County may go to that DOH for immunizations or PPDs. Students who reside in another county may contact their local Health Department, if they choose.

VERMONT CAMPUS

Fletcher Allen Health Care (FAHC), Colchester Family Practice (located approximately 4 miles from the ACPHS-Vermont campus at 883 Blakely Road, Colchester; Phone: (802) 847-2055.) FAHC provides medical/physician services to the Vermont Campus of Albany College of Pharmacy and Health Sciences students as part of their Health Center Fee. This fee is mandatory for all ACPHS students on the Vermont Campus. The Fletcher Allen Health Care Department of Family Medicine (Colchester Family Practice (CFP)) will provide "acute care" to students enrolled at the Albany College of Pharmacy and Health Sciences Vermont campus. There may be additional fees for services (e.g., laboratory tests, x-rays, immunizations, vaccinations, PPDs, etc.) provided to ACPHS students.

Fanny Allen Campus Walk-In Care Center (and Campus Laboratory) – (located at 790 College Parkway, Main Level, Colchester, across from St. Michael's College; Phone: 802-847-1170).

Please note that Albany College of Pharmacy and Health Sciences does not administer immunizations, blood tests or titers.

For further information and questions regarding immunization requirements, please contact the Office of Experiential Education at 518-694-7277, Room 108A, O'Brien Building.

HIPAA Training

With the introduction of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), it is mandatory that students participating in experiential education leading to a career as a health care professional have HIPAA training from Albany College of Pharmacy and Health Sciences. The College has entered into an agreement with Learn Something, Inc., which has made its widely adopted HIPAA Rx Privacy Training program available to students and staff of U.S. pharmacy schools. The training series provides job-specific overview training on the HIPAA Privacy Rule as it applies to pharmacies and is delivered online in an interactive format with activities, self-checks and audio. The course also includes a summary of best practices for privacy policies and procedures and should take approximately 1 hour to complete. At the end of the course there is an exam and a Completion Statement, which students need to keep a copy of for their records. ACPHS will provide details to Pharm. D. students about the training prior to clinical rotations.

CPR or Basic Life Support Certification

All pharmacy students are required to obtain CPR (Cardiopulmonary Resuscitation) or BLS (Basic Life Support) certification before starting clinical rotations, according to the standards of the Accreditation Council for Pharmacy Education (ACPE). Students must have valid CPR **or** BLS certification before the end of their 1st professional (P1) year and will be required to keep their certification valid throughout the duration of their 4th professional (P⁴) year. All certifications **MUST** include a hands-on skills portion (training cannot be done online only.)

INTERNATIONAL STUDENTS

SEVIS (STUDENT EXCHANGE VISITOR INFORMATION SYSTEM)

SEVIS is the government information system managed by the College for all its current and incoming students. The database stores all necessary information about students attending the College and in the United States on an F-1 visa. Students are charged a one time College SEVIS fee and also a separate government SEVIS fee upon acceptance and entry into the College. The government fee can be paid online at <https://www.fmifee.com/index.jhtml> once the student receives their Certificate of Eligibility, Form I-20 from the College. Students are responsible for updating their information every semester through the Primary Designated School Officer of the College.

VISAS

The College will issue a student the I-20 document which is their valid F-1 visa from the College. In countries other than Canada the student may have to meet with the United States Consulate in their home country to approve the visa and a passport for travel to the U.S. as a foreign student. Currently the College is eligible to issue only F-1 visas.

EMPLOYMENT

Curricular Practical Training (CPT) is offered to students entering the Pharmacy Skills Lab sequence in the fourth and fifth year of the Pharm.D. curriculum. CPT is defined to be alternative work/study, internship or cooperative education arranged with the approval of the student's program, or any type of required internship or practicum that is offered by sponsoring employers through cooperative agreements. CPT takes place during the academic year and MUST be undertaken prior to the completion of a course of study. Any activity for which a student receives a benefit, monetary or otherwise (even unpaid internships), requires CPT authorization. Students in F-1 status must have been lawfully enrolled in school on a full-time basis for at least one full academic year before becoming eligible for practical training. Students must follow the steps outlined below for CPT approval:

1. Pick up a CPT Approval Form from the Primary Designated School Officer (PDSO);
 2. Meet with the course coordinator to get their signed approval to complete CPT training as part of the course;
 3. Meet with the PDSO and turn in the signed approval form with a letter from the prospective employer indicating dates of employment and potential job duties;
 4. Upon completion of the CPT:
 - a) Complete a class project which documents what was accomplished/ learned during the CPT experience. This project needs to be approved by the course instructor.
 - b) Meet with the PDSO who will then verify CPT completion in the SEVIS system.
- Optional Practical Training (OPT) – Students are eligible after one year of academic work to use 12 months of employment.
 - Economic Hardship – Students must provide supportive documents to apply for employment through this process.
 - On Campus – Students are eligible to hold paying positions on campus once approved through the PDSO and Financial Aid. The student must obtain a United States Social Security number to be employed by the College.

College Officials

- Primary Designated School Official (PDSO) – Assistant registrar. The PDSO is the advisor for any immigration issues and the point of contact for employment approval or other processes where a school official is necessary. The Designated School Officer (DSO) is able to sign documents in absence of the PDSO.
- DSO – Registrar

Further information is available on the International Student Web site in Blackboard.

PHARM D PROGRAM (P1-P4): ADDITIONAL REQUIREMENTS FOR ADMISSION OF INTERNATIONAL STUDENTS

Applicants who have studied for fewer than 10 years where English is not the language of instruction are required to submit scores from the Test of English as a Foreign Language (TOEFL) or the Test of Spoken English (TSE). A minimum score on the TOEFL of 474 paper-based (70% of the maximum score of 677), or 84 Internet-based (70% of the maximum score of 120); and a minimum of 50 on the TSE must be achieved to be considered for admission.

Applicants with international transcripts must submit a credential evaluation completed through the World Education Service (WES).

FOREIGN EDUCATION CREDENTIALS EVALUATION

A foreign education credentials evaluation is to be completed by World Education Service (WES) for all international transcripts. Students who completed international coursework through a study abroad program are exempt.

In order to waive the College's Markel Plan, international students must complete the on-line waiver process *and* provide proof of coverage in the United States. To provide proof, international students are required to have their insurance provider submit a letter to the College stating that the student is covered in the U.S. under their insurance policy.

FEDERAL GRANTS & LOANS

FEDERAL GRANTS

Federal Pell Grants

Students may apply for the federal Pell grant by filing the FAFSA. Grants are available to students who qualify, based upon need as determined by the federal methodology formula. The Office of Financial Aid must receive a valid ISIR for processing of the Pell grant payment. Awards range from \$659 to \$5,550 per year for full-time enrollment, contingent upon congressional approval of funds and the expenses at the College. Students must maintain satisfactory progress toward their first undergraduate degree.

Federal Supplemental Educational Opportunity Grant

Awards may range from \$320 to \$1,600 per year for Pell-eligible students. Funds are limited and are awarded on a first-come, first-serve basis to students with greatest need. Students filing the FAFSA are automatically considered, based on financial need.

Federal Academic Competitiveness Grant Program

Eligible students may receive an Academic Competitiveness Grant (ACG) of \$750 for the first academic year of study and \$1,300 for the second academic year of study. To be eligible for each academic year, a student must:

- Be a U.S. citizen;
- Be a Federal Pell Grant recipient;
- Be enrolled full-time in a degree program;
- Be enrolled in the first or second academic year of his or her program of study at a two-year or four-year degree-granting institution;
- Have completed a rigorous secondary school program of study (after January 1, 2007, if a first-year student, and after January 1, 2006, if a second-year student);
- If a first-year student, not have been previously enrolled in an undergraduate program; and
- If a second-year student, have at least a cumulative 3.0 grade point average on a 4.0 scale (as set forth in regulations to be promulgated soon) for the first academic year.

Federal National SMART Grant Program

An eligible student may receive a National SMART Grant of \$4,000 for each of the third and fourth academic years of study. To be eligible for each academic year, a student must:

- Be a U.S. citizen;
- Be a Federal Pell Grant recipient;
- Be enrolled full-time in a degree program;
- Be enrolled in a four-year degree-granting institution;
- Major in physical, life or computer science, engineering, mathematics, technology or a critical foreign language; and
- Have at least a cumulative 3.0 grade point average on a 4.0 scale (as set forth in regulations to be promulgated soon) in the coursework required for the student's major.

Veterans Administration Educational Benefits

Chapters 30, 32, 33, 35 and 1606 of the U.S. Code established federal rules and regulations for educational benefits for veterans and their dependents. The benefits are administered as monthly stipends by the Veterans Administration. Veterans also may receive contributory benefits if they choose to participate in this program during their service in the military. Applications and information are available at the local Veterans Administration offices. Additional information concerning benefits is also available online at www.gibill.va.gov.

Bureau of Indian Affairs Scholarship

Eligibility is restricted to students with financial need who are at least one-fourth American Indian, Eskimo or Aluet and are enrolled members of a tribe, band or group recognized by the Bureau of Indian Affairs Office. Application must be made each year through the NY Liaison Office, Federal Building, Room 523, South Clinton Street, Syracuse, NY 13202. In addition, first-time applicants must obtain tribal certification from the bureau agency or tribal office that records the enrollment for the tribe.

FEDERAL LOAN PROGRAMS

Several types of federal student loans are available to students to help meet educational expenses. Student loan programs offer low interest rates and, when used with discretion, provide an affordable option to meet the cost of a quality education. Students and parents must choose their lender, when borrowing federal Stafford and/or PLUS loans. The College participates in the Federal Family Education Loan program. Students should complete the Electronic Master Promissory Note (E-MPN) for the Stafford, Parent Loan for Undergraduate Student (PLUS) and Graduate PLUS programs. The E-MPN is a 10-year serial promissory note used for all Stafford and PLUS loan borrowing while attending the College. Students will complete the Stafford loan E-MPN during the first year of attendance. Annual eligibility for Stafford loans will be communicated on the student's financial aid award letter. Students must sign and return the financial aid award letter to the office of financial aid each year in order to accept or decline Stafford loan funds. Transfer students or students with prior loan history will be required to complete a new Stafford loan E-MPN in order to borrow at ACPHS. Parents interested in borrowing the PLUS loan will complete the PLUS E-MPN during the student's first year of attendance. Parents must contact the Office of Financial Aid in writing with the requested loan amount each academic year. Graduate students interested in borrowing the Graduate PLUS loan will complete the PLUS E-MPN. Students and parents may complete the E-MPN applications by using the links available on the College's financial aid web pages. Students and parents without internet access may request paper MPN applications directly from their lender. The Stafford and PLUS E-MPN forms must be submitted to the lender by June 1 to ensure payment for fall semester expenses. All federal loans are certified for a full academic year (two semesters). Federal loans are disbursed in payments, with approximately one-half of the total loan amount disbursed each semester.

Federal Stafford Loans (Subsidized)

The Subsidized Federal Stafford loan is available to students with financial need. Repayment of the loan begins six months after the student graduates, withdraws or drops to less than half-time attendance. The interest is subsidized (paid) by the federal government during in-school periods and during the six-month grace period.

Unsubsidized Federal Stafford Loan for Dependent Student Borrowers

Eligibility for this program is not based upon financial need. The borrower is responsible for the interest that accrues while in school. Repayment of the loan principal begins months after the student graduates, withdraws or drops to less than halftime attendance. Borrowers with subsidized or unsubsidized Stafford loans may pay a combined origination/ reinsurance premium of 2-3 percent, depending upon the loan guarantor. Borrowers may receive both subsidized and unsubsidized federal Stafford loans totaling up to the applicable Stafford limit if they do not qualify for the total amount permitted under the subsidized federal Stafford loan program.

Stafford Loan Annual Limits:

Dependent Undergraduate Students:

Freshman: \$5,500 (\$3,500 between base subsidized and unsubsidized, plus an additional \$2,000 unsubsidized)

Sophomore: \$6,500 (\$4,500 between base subsidized and unsubsidized, plus an additional \$2,000 unsubsidized)

Junior or Senior: \$7,500 (\$5,500 between base subsidized and unsubsidized, plus an additional \$2,000 unsubsidized)

Aggregate Loan Limits

\$31,000 (up to \$23,000 may be subsidized)

\$31,000 (up to \$23,000 may be subsidized)

\$31,000 (up to \$23,000 may be subsidized)

Stafford Loan Annual Limits:

Independent Undergraduate and Graduate Students

Freshman: \$9,500 (\$3,500 between base subsidized and unsubsidized, plus an additional \$6,000 unsubsidized)

Sophomore: \$10,500 (\$4,500 between base subsidized and unsubsidized, plus an additional \$6,000 unsubsidized)

Junior or Senior: \$12,500 (\$5,500 between base subsidized and unsubsidized, plus an additional \$7,000 unsubsidized)

Graduate/Professional: \$20,500 (\$8,500 between base subsidized and unsubsidized, plus an additional \$12,000 unsubsidized)

Graduate/Professional

Doctor of Pharmacy Only: \$33,000 (\$8,500 between base subsidized and unsubsidized, plus an additional \$24,500 unsubsidized)

Aggregate Loan Limits

\$57,500 (including \$23,000 base subsidized and unsubsidized)

\$138,500 (up to \$65,500 may be subsidized)

Parent PLUS Loan Annual Limits**Undergraduate**

Cost of attendance minus other financial aid, per dependent student

Aggregate Loan Limit

None

Stafford Loan Interest Rates

The interest rate for subsidized and unsubsidized Stafford loans made after July 1, 2006 is fixed at 6.8%. The following schedule shows the annual decreases in the fixed interest rates on undergraduate subsidized Stafford loans:

- 6.0% for loans first disbursed between 7/1/08 - 6/30/09
- 5.6% for loans first disbursed between 7/1/09 - 6/30/10
- 4.5% for loans first disbursed between 7/1/10 - 6/30/11
- 3.4% for loans first disbursed between 7/1/11 - 6/30/12

The rate for loans disbursed prior to July 1, 2006 is variable (subject to change each year) but does not exceed 8.25%. Variable interest rates are adjusted each year on July 1.

Federal PLUS and Graduate PLUS Loan Interest Rates

The interest rate on PLUS Loans made after July 1, 2006 is fixed at 8.5%. The rate on PLUS Loans made prior to July 1, 2006 varies based on U.S. Treasury Bill rates and is subject to change annually. Under present law, this variable rate cannot exceed 9%. Each loan also carries an origination fee of 3% and a federal default fee of 1% of the amount borrowed. The lender deducts these fees from disbursements sent to the college.

Federal Consolidation Loan

For federal student loans in grace or repayment status. This program allows students to combine their debt into one lower payment. Repayment Schedules Available:

- Standard Repayment Plan
- Extended Repayment Plan
- Graduated Repayment Plan
- Income Contingent Repayment Plan

Interest Rate: Weighted average or variable with 8.25% cap

Federal Health Professions Student Loan

The HPSL program is offered by ACPHS to pharmacy students demonstrating financial need through an analysis of the FAFSA. Income and resources of student, spouse and parent(s) must be considered, regardless of the dependency status of a student. The maximum loan is \$2,500 plus tuition, not to exceed total costs less all resources. This loan carries a 5% interest rate, which does not accrue until 12 months after graduation or termination of studies. Students awarded a HPSL loan will complete a Master Promissory Note with the College. Funds are extremely limited.

Federal Perkins Loan

Perkins loans are limited by the amount of federal funding allocated to the College. Eligibility is based upon financial need. This loan carries a 5% interest rate, which does not accrue until nine months after graduation or termination of studies. Students awarded a Perkins loan will complete a Master Promissory Note with the College. Funds are extremely limited.

FEDERAL WORK STUDY

Funded through federal and College funds. Students exhibiting financial need may seek a work-study position on campus or at an approved off-campus site. Students working on-campus are paid \$8 per hour and generally work 3 to 6 hours per week during the academic year. Students may work up to a maximum of 20 hours per week in extraordinary cases, with permission from the vice president of enrollment management. Students working in the No Child Left Behind (NCLB) federal work study program provide reading and math tutoring to pre-school and elementary school children at off-campus locations. NCLB tutors are paid \$14 per hour and generally work two to four hours per week. Students must interview and attend training as part of this program.

ALUMNI COUNCIL

The Albany College of Pharmacy and Health Sciences Alumni Council represents more than 6,000 graduates of the College, is comprised of alumni volunteers from various class years and is a key liaison for the alumni community to the ACPHS Administration, Board of Trustees and Student Body. Membership in the Alumni Council is automatic upon graduation. Together, the Alumni Council members and ACPHS Office of Institutional Advancement, work hand in hand to implement a variety of programs, activities, communications, etc. to keep alumni involved with and informed about the College. Alumni participate in a range of campus and regional activities, including Reunion Weekend, Commencement and the White Coat and Hooding ceremonies in Albany and at the Vermont Satellite Campus. Members of the Alumni Council play a large role in the lives of current ACPHS students as well - through the generosity of various Annual Giving and Annual Fund contributions, recruitment at career fairs and promoting the importance of future alumni involvement. For more information regarding the ACPHS Alumni Council and community, contact the Office of Institutional Advancement at 518-694-7220.

ALUMNI ASSOCIATION GIFTS, GRANTS AND SCHOLARSHIPS:

AAACP General Scholarship Fund

Funded through the generosity of the alumni of Albany College of Pharmacy and Health Sciences and its Alumni Association, this scholarship fund supports current students across both campuses. This scholarship is a testament to the long term relationship the College has with its alumni.

AAACP Memorial Scholarship Fund

In honor of the College's alumni who have passed on, the Alumni Association of Albany College of Pharmacy and Health Sciences established this scholarship fund to assist current students. This scholarship is a living legacy to the 130 plus years of College history and the nearly 10,000 deceased and living alumni.

Allen Barnum '24 Alumni Scholarship

This scholarship was established by a 1924 alumnus to assist deserving students. Eligibility is based upon financial need and academic merit.

Milton Bernstein '31 Alumni Scholarship

This scholarship was established to assist deserving students. Eligibility is based upon financial need and/or academic achievement.

Orrin O. Bigelow '42 Alumni Scholarship

This scholarship was established for students who reside in Chenango, Madison, Otsego, Cortland or Delaware counties. Recipients must be graduates of high schools located in these counties. This scholarship is awarded to a deserving student based upon financial need.

Myron Book Scholarship Fund

This scholarship is based on financial need.

Class of 1988 Alumni Scholarship

This scholarship was established in memory of deceased members of the Class of 1988. This need-based scholarship is awarded to a fifth- or sixth-year student who has good overall academic achievement, and is a respected friend and colleague within their class.

Thomas Cutbush '68 Scholarship

This scholarship was established in memory of Thomas Cutbush '68. Eligibility is based upon financial need and academic merit.

Rinaldo V. DeNuzzo '52 Alumni Scholarship

The Rinaldo V. DeNuzzo Alumni Scholarship is awarded annually to a deserving student on the basis of academic achievement and financial need.

Francis Donovan '51 Scholarship

Scholarship is granted based upon financial needs and academic merit.

Harland R. Eckler '20 Alumni Fund Scholarship

This scholarship was established by the late Mr. Eckler to provide for scholarships for deserving students.

John E. Flynn Scholarship

This scholarship is in memory of Dr. Flynn, a professor of biology at ACPHS. The award is based on financial need and academic merit.

Paul A. Jablon Scholarship

This scholarship is in memory of Dr. Jablon, a professor of pharmacy at ACPHS. This award is based on financial need and academic merit.

Burt Orrin Kinney Alumni Scholarship

This scholarship was established for students with financial need from the New York counties of St. Lawrence, Jefferson, Delaware, Franklin, Lewis, northern Oswego or Clinton, or the Vermont counties of Chittenden or Franklin.

Recipients must be graduates of high schools located in the designated counties.

Richard E. Learned Endowed Graduate Research Scholarship

Established through the generosity of Susan Learned, a 1991 Alumna of the ACPHS, this scholarship is awarded to a student pursuing graduate study at the College. The student must be both academically and financially deserving and who intends to pursue a career in pharmaceuticals, clinical pharmacology and or translational research.

George C. Lewis '28 Alumni Scholarship

This fund was established to recognize the late Mr. Lewis, who served with distinction as a member of the board of trustees from 1966-76. This scholarship is awarded based upon financial need and academic merit.

Eli Lilly Scholarship

This scholarship was established with a gift from Eli Lilly and Company and donations by alumni employees of Eli Lilly and Company along with their matching gifts. Scholarships are granted based upon financial need and academic merit.

James McGuinness '71 Alumni Scholarship

This scholarship is awarded annually to a deserving student based upon academic merit and/or financial need.

Francis J. O'Brien '20 Alumni Scholarship

This scholarship was established as a matching fund by an anonymous alumnus in memory of Francis J. O'Brien, dean of the College from 1943-67. Scholarships are awarded annually to deserving students based upon financial need and academic excellence.

Malcolm Payne '86 Memorial Scholarship Fund

Established through the generosity of an estate gift from Malcolm Payne '86, this scholarship was established to assist a student who has been directly impacted through cancer. Recipients are required to submit a personal essay stating how their lives have been affected by cancer and how their career goals will assist cancer research and care. A member of the Alumni Association of Albany College of Pharmacy (AAACP) since his graduation in 1986, Malcolm was most importantly a proud father, husband, son, brother and an amazing friend.

Bertram Rapowitz '58 Scholarship

This scholarship was established by a gift from Bertram Rapowitz '58. This scholarship is awarded annually on the basis of academic achievement and financial need.

Ellis H. Robison Alumni Scholarship

Established in memory of this former board of trustees' member and chairman, the Robison Scholarship is

awarded annually on the basis of academic achievement and financial need.

Dennis Rule '96 Memorial Scholarship

This scholarship is awarded to a student who is an active member of a fraternal organization and involved in community service outside of ACPHS. The award is based upon financial need.

Albert M. White Scholarship Fund

Established by friends and colleagues of the late Albert M. White, a former ACPHS basketball coach and associate dean of the College. This scholarship is awarded to students who demonstrate strong leadership qualities, scholastic ability and athletic participation.

Be the Change Scholarship

Presented to the College as a gift upon their graduation, the Class of 2011 established the Be the Change Scholarship to honor the work of faculty member Dr. Ray Chandrasekara. This scholarship is presented annually to a student who shows dedication to the college community through service and leadership, displays an eclectic school and life balance, and embodies selflessness and shares this attribute with others.

James E. Bollinger '58 Memorial Scholarship

Through the generosity of James' wife Joyce and his family, friends and colleagues the James E. Bollinger '58 Memorial Scholarship was established in honor of James' dedication to his alma mater, including his nearly decade of service as a member of the Board of Trustees. This scholarship is awarded to a pharmacy student in their third year (first professional year) of study that is in good academic standing with the College.

OTHER SCHOLARSHIPS

Ellen Widenmann Boyian Scholarship

This scholarship was established by a gift in memory of Ellen Widenmann Boyian, an ACPHS alumna. Scholarships are granted based upon financial need and academic merit.

Debra Bramer Memorial Scholarship

This scholarship is awarded to a pharmacy student who is a resident of Montgomery County and aspires to work, or is working part time, in a retail setting and is dedicated to community service, particularly with the elderly. This award is based upon financial need.

Bristol-Myers Squibb Scholarship

This scholarship was established by a gift from the Bristol-Myers Squibb Company in 1994. Scholarships are granted based upon financial need and academic merit.

Burlington Drug Company Endowed Scholarship

The Burlington Drug Company Endowed Scholarship is awarded annually to outstanding first, second, third and fourth professional year students with an emphasis on

students from Vermont and studying at the Vermont Campus. Students must be U.S. Citizens to be eligible, enrolled in the Doctor of Pharmacy program and demonstrate financial need, in accordance with established guidelines and meeting academic merit.

Capital Area Pharmaceutical Society Scholarship.

Established by a gift from CAPS, this scholarship is granted to a fifth-year student who also qualifies as a member of the Pharmaceutical Society of the State of New York.

Wilma Clinton Cytotechnology Scholarship

This scholarship is awarded to a cytotechnology student based on academic excellence.

Alfred J. Collins Jr. '53/ Warner-Lambert/JC Penney Scholarship

This scholarship was established from a gift from Warner-Lambert on behalf of Alfred J. Collins Jr. '53, chairman of the board of trustees from 1985-1993 and 1997-2003. Scholarships are granted based upon financial need and academic merit.

CVS (Consumer Value Stores) Scholarship

In the 1986-87 academic year, CVS began granting scholarships to students from ACPHS. These scholarships are based upon academic merit.

Demers Family Scholarship

This scholarship is awarded to first-year students who are residents of St. Lawrence, Franklin, Jefferson or Lewis counties.

H. Russell Denegar '43 Scholarship Fund

This scholarship was established in 1996 by a gift from H. Russell Denegar, an ACPHS alumnus and former associate dean of the College. Scholarships are granted based upon financial need.

Janet Doyle Maiuro '52 Memorial Scholarship

The Janet Doyle Maiuro '52 Memorial Scholarship is awarded to an incoming first-year student who is in good academic standing with significant financial need.

General Scholarship Fund

This scholarship was established by donations from alumni and gifts given in memorial. Scholarships are granted based upon financial need.

Haggerty Memorial Scholarship

This scholarship was established by Frederick Haggerty '50 and his wife, Edna, in memory of Frederick's parents, Kenneth and Alice Haggerty, both members of the Class of 1922. Scholarships are awarded to pharmacy students enrolled in the professional years of study. Students must be in good academic standing, have financial need and intend to practice pharmacy upon graduation.

Irving and Charlotte Helprin Endowed Scholarship Fund

Established through the generosity of Irving and Charlotte Helprin, this scholarship honors their life work and commitment to Albany College of Pharmacy and Health Sciences and the community of Saratoga Springs, NY. Irving Helprin, a member of the College's graduating class of 1928, was the owner of Helprin Brother's Pharmacy in Saratoga Springs, NY. Mr. & Mrs. Helprin established this scholarship for a student who has graduated from the Saratoga Springs, NY City School District and attends Albany College of Pharmacy and Health Sciences.

Henning Scholarship

This scholarship is in memory of Walter Henning '43 and his wife, Kathryn. This award is based on financial need and academic merit.

Kenneth G. Hunter '25 Scholarship

This scholarship is awarded to the incoming first-year student having the highest SAT score placing in the top 5 percent of his or her class.

Albany Graduate Chapter of Kappa Psi Fraternity Scholarship

Established in 1998, this scholarship will be awarded to a member of the Kappa Psi Fraternity.

Bruce Kay '66 Memorial Scholarship

Established by the friends and family of former ACPHS trustee Bruce Kay '66, this scholarship is awarded annually to a student who has demonstrated financial need and academic excellence. Special preference is given to students who are interested in pursuing a career in hospital pharmacy.

Kirkpatrick Scholarship

This scholarship is in memory of Ozzie and Margaret Kirkpatrick, caretakers of ACPHS for more than 40 years. This award is based on financial need and academic merit.

Charles Leighton '59 Memorial Scholarship

This scholarship was established by Josephine Leighton in memory of her husband E. Charles Leighton, an ACPHS alumnus. Scholarships are granted based upon financial need and academic merit.

Rita E. Leighton '86 Scholarship Fund

This scholarship was established in memory of former board of trustees' member Rita Leighton, M.D., and is awarded annually to a female basketball player. Along with her high academic achievement, Dr. Leighton was the career scoring leader for ACPHS women's basketball from 1986-2005. The recipient must have completed two academic years at the College, played two full seasons of basketball at ACPHS and be in good academic standing.

Edward Malkonian '34 Endowed Scholarship

This scholarship is awarded to a student who has demonstrated the resilience to rise above adverse

circumstances by dint of hard work and tenacity. The student must have maintained a good class standing while sustaining part-time employment and diverse responsibilities. This award is based upon financial need.

Donald McAndrew '62 Memorial Scholarship

This scholarship was established by the Class of 1962 in memory of their classmate, an adjunct faculty member who died in 1994. Scholarships are granted based upon financial need and academic merit.

Harry Mikhitarian '54 Memorial Scholarship

Created by his family in memory of former trustee Harry Mikhitarian '54, this scholarship is awarded to a well-rounded student from the Capital Region who demonstrates financial need and a commitment to community service.

Dr. Kenneth W. Miller Scholarship

Established in 1993, scholarships are awarded in honor of Dr. Miller, president and dean of ACPHS from 1982-93. Scholarships will be awarded annually to academically qualified students with demonstrated financial need who are pursuing the Doctor of Pharmacy degree and in the professional years (class years 3-6). Preference will be given to Accelerated students entering the College with a bachelor's degree.

Morrissey Scholarship

This scholarship is in memory of James J. Morrissey Jr. '65. To be eligible for this award, students must have at least two years of military service.

Varant Najarian Endowed Scholarship

This scholarship is in memory of Varant Najarian, the longtime chair of the Liberal Arts Department at ACPHS (now incorporated in the Department of Arts and Sciences) and a member of the College faculty from 1953 until his death in August 2002. The scholarship recognizes a student who has demonstrated excellence in the liberal arts portion of the curriculum.

National Association of Chain Drug Stores Scholarship

This scholarship was established by a gift in 1996 from NACDS. Scholarships are granted based upon financial need and academic merit.

Henry A. Panasci Jr. Pharmacy Scholarship Fund

This fund was established by Mr. Panasci, cofounder of Fay's Drug Company, Inc. Scholarships are based upon financial need and academic merit.

Frank A. Reiss '89 Memorial Scholarship

Frank Reiss was a community pharmacist and an active member of the Pharmacist Society of the State of New York (PSSNY), including serving as President of the organization. A member of the Class of 1989, Frank

established this scholarship to encourage future community pharmacists. The recipient of this scholarship must have an interest in owning a community pharmacy and be a member of PSSNY.

Alpha Theta Chapter of Phi Delta Chi Professional Pharmacy Fraternity Award

The endowment is established exclusively for the benefit of the brothers of Alpha Theta Chapter of Phi Delta Chi Professional Pharmacy Fraternity. Brothers in this chapter may apply to be considered for this award in years 3-5 of study. Interested applicants should contact members of the chapter's Alumni Committee to apply.

Rite Aid Endowment Scholarship

This endowed scholarship was established in 1983 by a gift from the Rite Aid Corporation. Scholarships are granted based upon financial need and academic merit.

Rite Aid Scholarship

In addition to Rite Aid's endowed scholarship, this annual scholarship is offered to upperclass students based upon academic merit and financial need.

Aaron Rosenshine '26 Endowed Scholarship Fund

The award is given annually to an academically able and well-rounded student with financial need.

Carol Lee Soweck '74 Memorial Scholarship

This scholarship was established by Edward and Muriel Soweck in memory of their daughter Carol, a 1974 graduate of ACPHS's former Medical Technology program. This scholarship is awarded to a Biomedical Technology student and is based upon financial need.

Vander Veer Scholarship

This scholarship is part of the general scholarship fund and used for graduate student needs, including those students in ACPHS's Pharm.D. program.

Walgreens Drug Company

Established in 1995-96, scholarships are awarded based upon financial need and academic merit.

Wegman's Scholarship Fund

The Wegman's Scholarship is restricted to students that maintain a high level of academic achievement, excellent work performance and who agree to complete either summer internships at Wegman's or sixth year rotations, or both.

The Michael P. and Elsie K. Yuda Scholarship

The scholarship was established from a gift by the Yuda Trust upon the death of Elsie, widow of ACPHS graduate Michael P. Yuda '20. Scholarships are granted based upon financial need and academic merit.

Mario M. Zeolla '97 Memorial Scholarship

Created by his family in memory of beloved faculty member Mario M. Zeolla '97, this scholarship is awarded annually to a pharmacy student, enrolled in the professional years of study, who shows strong leadership qualities, has a high academic standing and has completed two full seasons of soccer.

The Bette Family Scholarship Fund

Established in 2010 by ACPHS Trustee and honorary degree recipient Michael Bette and his family, the Bette Family Scholarship Fund supports minority students who have graduated from an Albany, Troy or Schenectady City High School including public, charter, military and parochial schools. The recipient(s) must have financial need, as determined by the College.

Edward A. '59 & Dotti M. '62 Fausel Scholarship

Established in 2010, the Fausel Scholarship is awarded to a pharmacy student in a professional year of study. Recipients of this scholarship should be in good academic standing with the College. Additional consideration will be given to students who have an expected family contribution, as determined by the FAFSA, which excludes them from federal grant assistance but includes them for need based federal loans.

OTHER FINANCIAL ASSISTANCE PROGRAMS

Private Education Loan Programs

Many lenders offer private education loans for students and parents. These programs are designed to assist in meeting college costs not covered by federal, state and institutional aid programs. Eligibility for private education loans normally includes review of the credit history of the student applicant and adult co-signer. All private loans are certified for a full academic year and are disbursed on a semester basis. Private loan applications for the Doctor of Pharmacy. Accelerated option are certified for one calendar year and disbursed in three payments. Students communicate their lender of choice to the Office of Financial Aid by submitting an application directly to their lender or by contacting the Financial Aid in writing.

TuitionPay Payment Plan by Sallie Mae

This plan is available to pay college tuition and fees in ten convenient monthly payments. Monthly payments normally commence July 1 of each year. The annual cost of this plan is \$60. There are no other fees or interest charges associated with the TuitionPay plan. Information concerning this plan is available using the links on the College's financial aid web pages.

National Community Pharmacists Association

Available to student members of the National Community Pharmacists Association in the last seven semesters of their first professional pharmacy degree program and who are planning a career in independent community pharmacy practice. Applicants must be U.S. citizens. Loans are granted in increments of up to \$2,500 per semester to a maximum of \$5,000 per calendar year. The amount requested cannot exceed the cost of tuition and book fees for the semester to which the student is applying. Student membership applications are available at www.ncpanet.org.

Francis J. O'Brien Emergency Loan Fund

This fund is designed to provide short-term emergency loans of no more than \$500 per semester (\$1,000 maximum per year) to students. Students must sign a promissory note with the vice president for enrollment management. All loan proceeds must be repaid to the fund within 30 days

Student Employment

The College also provides an opportunity for a significant number of students to work in campus and faculty offices, the library, gymnasium and other campus areas. Information concerning student employment may be obtained from the Office of Financial Aid. All inquiries and correspondence concerning financial assistance should be addressed to: Office of Financial Aid, Albany College of Pharmacy and Health Sciences, 106 New Scotland Ave., Albany, NY 12208. Telephone: (518) 694-7256. Facsimile: (518) 694-7121. E-mail: financial_aid@ACPHS.edu

NEW YORK STATE SCHOLARSHIPS & GRANTS

The Higher Education Services Corporation administers the New York State programs of financial assistance to undergraduate and graduate students. Information regarding these programs follows. Questions concerning any of the programs described below may be addressed by contacting the Office of Financial Aid. Students may also contact HESC at (888) NYS-HESC or www.hesc.com.

ELIGIBILITY

In order to receive payment under New York State financial assistance programs, students must:

- Be a United States citizen or eligible non-citizen
- Be a legal resident of New York State
- Study full-time (at least 12 credits per semester) at an approved postsecondary (beyond high school) institution in New York State. In some circumstances, the credits for repeating a course in which you already have received a passing grade may not be included in the determination of full-time enrollment for state student financial aid purposes. If the student is disabled and as a result cannot attend full-time, he or she may be eligible. Contact the Office of Financial Aid with any questions.
- Meet the income requirement. "Income" for the Tuition Assistance Program means the taxable income of the student, spouse and/or parent(s) as reported on 2008 New York State income tax return. NYS taxable income is calculated on the tax form after personal exemptions and deductions have been subtracted. The incomes of student, parent(s) and the student's spouse are added together to obtain the total NYS taxable income.
- Be registered as a matriculated student. A matriculated student has applied for, been accepted as and is registered as a candidate for a degree, diploma or certificate.
- Maintain good academic standing. The regulations of the commissioner of education provide that good academic standing consists of two elements

TABLE 2. PURSUIT OF PROGRAM REQUIREMENT FOR NEW YORK STATE AWARDS

In order to receive New York State awards, a student is required to receive a passing or failing grade (A-F letter grade) in a certain percentage of courses each term, depending upon the number of state award payments that a student has received. The percentage is determined according to the following schedule:

<u>Number of Payments</u>	<u>Must Receive a Grade For</u>
1 or 2	50% of minimum full-time requirement (6 credit hours each semester)
3 or 4	75% of minimum full-time requirement (9 credit hours each semester)
5 or more	100% (12 credit hours each semester)

1. Pursuit of program: a requirement that the student complete a certain percentage of credits each term.
2. Satisfactory academic progress: a requirement that the student earns a specified number of credits and achieves a specified cumulative grade-point average each term. (See Table 1, page 120 and Table 3, page 135).

- Be free of debt from a defaulted guaranteed student loan. If the student previously has defaulted on a guaranteed student loan, he or she may reestablish eligibility for state financial aid through the Renewed Eligibility for Financial Aid program. Contact the Loans Division of HESC at (888) NYS-HESC for information regarding the REFA program.

New York State Tuition Assistance Program (TAP)

In the 2010-11 year, TAP will provide a tuition award from \$75 to \$5,000 per year. The award schedules are determined by the state legislature during the annual state budget process. The award is based upon the total of the NYS taxable income reported for the student, spouse and parent(s) on the 2008 NYS tax forms. The TAP award is not a loan and does not have to be repaid. To receive a TAP award as an undergraduate student, the total of the NYS taxable incomes of the student, spouse and parent(s) cannot exceed \$80,000. To receive a TAP award as a graduate student, the total of the NYS taxable incomes of the student, spouse and parent(s) cannot exceed \$20,000.

TAP Application Procedures

The student must file the FAFSA by May 1 in order to receive a TAP award for the following academic year. HESC will use information provided on the FAFSA to generate a TAP award.

ACPHS’s undergraduate TAP code is 0995.

This TAP code should be reported for the first four years of study in the Doctor of Pharmacy (Pharm.D.) degree program and all years of study in the bachelor’s degree programs.

ACPHS’s graduate TAP code is 5795. This code should be reported only for the fifth and sixth years of study in the Doctor of Pharmacy (Pharm.D.) degree program. Students enrolled in other graduate programs at ACPHS are not eligible for TAP.

TABLE 3. Standards of Academic Progress – First Time Recipients of NYS TAP

Applicable to all first-time TAP recipients enrolled in the Doctor of Pharmacy or Bachelor’s degree programs.

Before being certified to receive the following NYS TAP payments:									
First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
A student must have accrued at least this many credits:									
0	9	28	42	56	70	84	98	112	126
With at least a grade point average of:									
0.0	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

OTHER NYS SCHOLARSHIPS AND AWARDS

The availability of all New York State scholarship and award programs is subject to approval by the State Legislature each year. Additional information about these scholarships is available on-line at www.hesc.org.

NYS SCHOLARSHIPS

- Flight 3407 Memorial Scholarship
- NYS Flight 587 Memorial Scholarship
- Military Service Recognition Scholarship (MSRS)
- New York Lottery – Leaders of Tomorrow Scholarship
- NYS Memorial Scholarships for Families of Deceased Firefighters, Volunteer Firefighters, Police Officers, Peace Officers, and Emergency Medical Service Workers
- NYS Regents Professional Opportunity Scholarship
- NYS Scholarships for Academic Excellence
- NYS Volunteer Recruitment Service Scholarship
- NYS World Trade Center Memorial Scholarship
- Robert C. Byrd Honors Scholarship

NYS AWARDS

- NYS Aid to Native Americans
- NYS Regents Awards for Children of Deceased and Disabled Veterans
- Segal AmeriCorps Education Award
- Veterans Tuition Awards

VERMONT INCENTIVE GRANTS

Vermont residents accepted or enrolled in an undergraduate degree or certificate program who will be attending college full-time, and do not already have a bachelor's degree, are eligible to apply for a Vermont Incentive Grant. Eligibility is based upon financial need with grants ranging from \$700 to \$11,200 for the 2010-2011 academic year. Vermont Incentive Grants may be used at schools either within Vermont or out-of-state. To apply, complete a Free Application for Student Aid (FAFSA) and a Vermont Grant Application. The Vermont Grant application will be available electronically when submitting the FAFSA. Paper applications are also available at www.vsac.org.

INSTITUTIONAL AID

ACPHS offers institutional scholarships and grants based upon established criteria as noted. All awards are based upon full-time enrollment each semester, unless otherwise indicated. Need-based scholarships require the student to file the FAFSA each year by the published priority deadlines of February 1, for new students, and March 1, for returning students. Students applying for admission through the Early Decision process must file the CSS Profile Form by November 15. New recipients must be accepted for enrollment. Renewal recipients must be full-time matriculated students, maintaining standards of satisfactory academic progress. All awards are subject to adjustment due to changes in enrollment status, or receipt of other federal, state or private funds. In addition, awards will be adjusted as part of required corrections or verification of data reported on the student's federal ISIR. The Office of Financial Aid will evaluate eligibility annually, based upon issuance of final grades for spring term. Awards will be renewed on a first-come, first-served basis until funds are expended. Awards may not be renewed to students who do not adhere to the FAFSA filing deadline of March 1. Awards will not be renewed to students with incomplete financial aid paperwork after May 1.

Presidential Scholarships, Dean's Scholarships, Trustee Scholarships and Trustee Grants will be renewed for a maximum of 11 semesters for students pursuing the Doctor of Pharmacy degree. Presidential Scholarships, Dean's Scholarships, Trustee Scholarships, Trustee Grants, Pharmaceutical Sciences Scholars Awards, Biomedical Technology Excel Awards, Health and Human Sciences Scholars Awards and Trustee Scholarships for bachelor's degrees will be renewed for a maximum of seven semesters for students pursuing a bachelor's degree. All award criteria may be subject to change by the College.

Albany College of Pharmacy and Health Sciences Presidential Scholarship. ACPHS offers tuition scholarships to qualified entering freshmen upon admission to the College based upon superior academic achievement in high school. The Presidential Scholarship is renewed each year provided the student maintains a cumulative overall GPA of 3.2 or better. Although eligibility for this scholarship is based upon academic merit, students are encouraged to submit the FAFSA to determine eligibility for other sources of financial aid.

Albany College of Pharmacy and Health Sciences Dean's Scholarship. ACPHS offers tuition scholarships to qualified entering freshmen upon admission to the College based upon honorable academic achievement in high school. The Dean's Scholarship is renewed each year provided the student maintains an overall cumulative GPA of 3.0 or better. Although this scholarship is based upon academic merit, students are encouraged to submit the FAFSA to determine eligibility for other sources of financial aid.

Albany College of Pharmacy and Health Sciences Trustee Scholarship. Each year the trustees of the College generously approve funding for a number of scholarships to be awarded on the basis of established need and academic achievement. First-year students must maintain a 2.0 overall cumulative GPA, and upper-class students must maintain a 2.3 overall cumulative GPA for continued renewal of the scholarship. Students must submit the FAFSA each year to determine eligibility for this scholarship.

Albany College of Pharmacy and Health Sciences Biomedical Technology Excel Award. ACPHS offers merit-based scholarships to qualified entering freshmen, upon admission to the College in the bachelor's degree program in Biomedical Technology, who exhibit honorable academic achievement in high school. The Biomedical Technology Excel Award is renewed for a maximum of four years, provided the student maintains a cumulative GPA of 2.5 or greater and continued enrollment in the Biomedical Technology program. This award will be discontinued should the student change his/her program of study. Although this scholarship is based upon academic merit, students strongly are encouraged to complete the FAFSA each year. Intel International Science and Engineering award recipients will be considered for this award.

Albany College of Pharmacy and Health Sciences Health and Human Sciences Scholarship. ACPHS offers merit-based scholarships to qualified entering freshmen, upon admission to the College in the bachelor's degree program in Health and Human Sciences, who exhibit honorable academic achievement in high school. The Health and Human Sciences Scholarship is renewed for a maximum of four years, provided the student maintains a cumulative GPA of 2.5 or greater and continued enrollment in the Health and Human Sciences program. This award will be discontinued should the student change his/her program of study. Although this scholarship is based upon academic merit, students strongly are encouraged to complete the FAFSA each year.

Albany College of Pharmacy and Health Sciences Pharmaceutical Sciences Scholarship. ACPHS offers merit-based scholarships to qualified entering freshmen, upon admission to the College in the bachelor's degree program in Pharmaceutical Sciences, who exhibit honorable academic achievement in high school. The Pharmaceutical Sciences Scholarship is renewed for a maximum of four years, provided the student maintains a cumulative GPA of 2.5 or greater and continued enrollment in Pharmaceutical Sciences program. This award will be discontinued should the student change his/her program of study. Although this scholarship is based upon academic merit, students strongly are encouraged to complete the FAFSA each year.

Albany College of Pharmacy and Health Sciences Trustee Scholarship for Bachelor's Degree Programs. ACPHS offers need-based scholarships to qualified entering freshmen, upon admission to the College in the bachelor's degree programs, who exhibit honorable academic achievement in high school. The Trustee Scholarship for bachelor's degree programs is renewed for a maximum of four years, provided the student maintains a cumulative GPA of 2.3 or greater and continued enrollment in the bachelor's degree programs. This award will be discontinued should the student change his/her program of study. Students must complete the FAFSA each year for continued renewal of the award.

Albany College of Pharmacy and Health Sciences Dean's Endowment for Excellence Scholarship. Each year the committee representing the Dean's Endowment for Excellence Scholarship selects one entering freshman for the scholarship. The recipient must be one of the top 10 freshmen applicants to the College for the given year. The scholarship is awarded on the basis of academic merit. The scholarship will be renewed for a maximum of six years or until the student leaves or graduates from the College. The student must maintain a 3.0 overall cumulative GPA for continued renewal of the scholarship. The recipient is encouraged to participate in the program of the annual Dean's Cup Golf Tournament each summer. Renewed eligibility for the scholarship will be reviewed annually.

Albany College of Pharmacy and Health Sciences Trustee Grant.

Each year the trustees of the College generously approve funding for a number of grants to be awarded on the basis of established need and academic achievement. Students must maintain standards of academic progress for continued renewal of the grant. Students must submit the FAFSA each year to determine eligibility for this grant. Students in the Ventures Scholars Program will be considered for this scholarship.

Albany College of Pharmacy and Health Sciences Award for Intel Scholars. This scholarship is presented to selected entering freshmen who demonstrate outstanding achievement in the area of biomedical sciences at the Intel International Science and Engineering Fair or an ISEF-affiliated fair. Recipients must be admitted to the College in the bachelor's degree program in Pharmaceutical Sciences. The annual \$5,000 tuition scholarship is renewable for four years. The student must maintain a 3.0 GPA and full-time enrollment status. This award will be discontinued should the student change his/her program of study. Although this scholarship is based upon academic merit, students strongly are encouraged to complete the FAFSA each year.

Albany College of Pharmacy and Health Sciences Award for Ventures Scholars. This scholarship is presented to selected Ventures scholars, entering as freshman, who have a minimum average of 90 and a minimum SAT score of 1,200. In addition, class rank is considered in the selection process. New York students must have a minimum Regents grade of 85. Selected recipients may be eligible for an award ranging from \$2,000 to \$10,000. Recipients must maintain a 2.3 overall cumulative GPA for continued renewal of the award.

Albany College of Pharmacy and Health Sciences Freshman Technology Grant. ACPHS offers onetime, non-renewable technology grants to qualified entering freshmen who demonstrate exceptional financial need. Students must submit the FAFSA to determine eligibility for this grant.

Albany College of Pharmacy and Health Sciences On-Campus Housing Grant. ACPHS offers housing grants to qualified entering freshmen who demonstrate exceptional financial need. Students must reside on-campus in dormitories owned by ACPHS for consecutive terms for continued renewal of the grant. Students must submit the FAFSA each year to determine eligibility for this grant.

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Student Center, Room 209
Department Secretary: 518-694-7107
counselingservices@acphs.edu

Academic Assistance

Center for Teaching and Learning Effectiveness
Library Building, Room 206

Activities and Clubs

Albany: Student Center, Room 207; 518-694-7366
Vermont: Room 102E; 802-735-7620
Studentactivities@acphs.edu

Add/Drop Procedure

Registrar
Library Building 518-694-7222
registrar@acphs.edu

Admissions

Albany: O'Brien Building, Room 124; 518-694-7221
Vermont: O'Brien Building, Room 118; 518-694-7149
admissions@acphs.edu

Alcohol and Other Drug

Director of Health and Wellness
Policy Information Library Building, Room 205
Department Secretary: 518-694-7107
healthandwellness@acphs.edu

Alumni Programs

Office of Institutional Advancement
O'Brien Building, Room 122
518-694-7393
alumni@acphs.edu

Athletics and Fitness Center

Albany: Gym, Room 101, 518-694-7357
Vermont: Room 102E; 802-735-7620
athletics@acphs.edu

Books and Supplies

College Bookstore
Student Center, 518-694-7378
bookstore@acphs.edu

Campus Life

Albany: Student Center, Room 209; 518-694-7175
Vermont: Room 102E; 802-735-7620

Career Services

Library Building, 518-694-7164
careers@acphs.edu

Change of Address (Student)

Registrar
Click on Jenzabar, Ex Web, My Personal Information
registrar@acphs.edu

Computer Services

Information Technology Services
Student Center, Room 212; 518-694-7358

Counseling and Wellness

Student Center, Room 209; 518-694-7107
counselingservices@acphs.edu

Dining Services

Chartwells; Student Center; 518-694-7218

Employment (On-Campus)

Office of Financial Aid; Student Center, Room 207
518-694-7258; finaid@acphs.edu

Experiential Education

O'Brien Building, Room 108; (518) 694-7365

Financial Aid

Student Center, Room 207; 518-694-7256
finaid@acphs.edu

Advising

Director of Advising
Library Building, 518-694-7314; advising@acphs.edu

Graduate and Pharmacy Admissions

O'Brien Building, Room 118; 518-694-7149
graduateeducation@acphs.edu

Grants & IRB Administrator

OB017E, 518-694-7144

Health Center

Albany: Student Health Center, Albany Medical Center, South Clinical Campus, 25 Hackett Blvd., Albany, NY 12208
Vermont: Fletcher Allen Health Care Community Practice Group, 883 Blakely Road, Colchester, VT; 802-847-2055

Health Insurance

Albany: Office of Administrative Operations, O'Brien Bldg., Room 104C, 518-694-7118
Vermont: Room 102E; 802-735-7620
studentservices@acphs.edu

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Student Center, Room 207
518-694-7118
campuslife@acphs.edu

Identification Cards

Information Technology Services
Student Center, Room 209
Helpdesk@acphs.edu

Immunization Records

Experiential Program Administrator
O'Brien Building, Room 108A
518-694-7277

Instructional Technology

Library Building, Room 108E
518-694-7210, judy.teng@acphs.edu

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Library@acphs.edu

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Student-accounts@acphs.edu

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518-694-7270
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Registration and Class/Course Scheduling

Registrar
Library Building, 518-694-7222
registrar@acphs.edu

Science Assistance Center

Library Building, Room 209
ACPHS Blackboard (under the Student Tab)

Student Professional Organizations

Assistant Dean Sarah Scarpace
518-694-7226

Transcripts

Registrar
Library Building, 518-694-7222
registrar@acphs.edu

Tuition and Billing

Office of Student Accounts
84 Holland Building, Room 101; 518-694-7205
Student-accounts@acphs.edu

Withdrawals and Leaves of Absence

Registrar; Library Bldg., 518-694-7222
registrar@acphs.edu

Writing Center

Library Building, Room 306

EMERGENCY CONTACT INFORMATION

Fire and Emergency Services 9-1-1

Albany Campus

University Heights Association Public Safety (this should be the first call for all student emergencies) 518-244-3177
Albany Police and Fire Department (non-emergency) 518-438-4000
Albany Family Practice Community Care Physicians 207-CARE
Albany County Mobile Crisis 447-9650

Vermont Campus

The following contacts/services apply only to students on the Vermont campus.

Hunter North Associates (On-duty officer)*

603-494-4617
Emergency – 518-244-3177

Colchester Police/Fire/Rescue**

802-264-5555

*Hunter North Associates will provide on-site security officer during specified hours. During these hours, the Hunter North Security “On-Duty Officer” should be the primary call.

***Outside of normal business hours (if Hunter North is not available) or to report potential criminal activity, please contact the Colchester Police Department.*

106 New Scotland Avenue
Albany, NY 12208-3492
Tel. (518) 694-7200



261 Mountain View Drive
Colchester, VT 05446-5823
Tel. (802)735-2601

Web site: www.acphs.edu