ALBANY COLLEGE
OF PHARMACY
AND HEALTH SCIENCES

# 2024-25 COLLEGE CATALOG

## DISCLAIMER

All information in this Catalog pertains to the 2024-2025 academic year and is correct to the extent that the information was available (by August 2024).

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.

**Please visit https://www.acphs.edu/academics/catalog for the most up-to-date program information.**

# WELCOME!

Founded in 1881, Albany College of Pharmacy and Health Sciences (ACPHS) is a private, independent institution with a long tradition of academic and research excellence. The college's mission is to educate the next generation of leaders to improve the health of our society.

The ACPHS experience is one that combines quality academics, experiential learning, personalized attention, and a strong emphasis on service – all of which help our students grow personally and develop into talented and trusted professionals.

ACPHS has long been regarded for its Doctor of Pharmacy program which remains the school's core program. In recent years, the College has expanded its academic offerings to include several bachelor's and master's programs in the health sciences. Opportunities exist for students within each of these programs to work side-by-side with faculty on groundbreaking research in areas such as cancer, infectious disease, and obesity.

These opportunities, along with access to resources such as the cutting-edge Center for Biopharmaceutical Education and Training (CBET), two student-operated pharmacies, and the Collaboratory are part of what distinguishes ACPHS from other colleges and universities.

Graduates of the College are prepared for a range of careers such as: biochemist, clinical laboratory scientist, consumer safety officer, drug information specialist, environmental toxicologist, health policy analyst, hospital administrator, pharmacist, physician, physician assistant and research scientist.

Graduates are also well positioned to continue their education in graduate or professional schools.

# ACCREDITATION

Albany College of Pharmacy and Health Sciences holds accreditation from the Middle States Commission on Higher Education (MSCHE), located at 3624 Market Street, Philadelphia, PA 19104. Their phone number is (267) 284-5000. MSCHE 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 Department of Education. MSCHE examines each institution as a whole, rather than specific programs within institutions. The institution is accredited through 2029.

The below ACPHS programs are accredited separately. The length of each accreditation cycle is determined by the respective accrediting body.

## DOCTOR OF PHARMACY (PHARM.D.)

The College's Doctor of Pharmacy program holds accreditation from the Accreditation Council for Pharmacy Education (ACPE), located at 135 S. LaSalle Street, Suite 4100, Chicago, IL 60603-4810. Their telephone number is (312) 664-3575. Unresolved issues related to ACPE accreditation standards may be brought to ACPE's attention. The program is accredited through 2025 with the next accreditation site visit scheduled for spring 2025.

## CLINICAL LABORATORY SCIENCES

The College's Clinical Laboratory Sciences programs hold accreditation from the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), located at 5600 N. River Road, Suite 720, Rosemont, IL 60018-5119. Their telephone number is (847) 939-3597 or (773) 714-8880. The program is accredited through 2029.

## CYTOTECHNOLOGY

The College's Cytotechnology program holds accreditation from the Commission on Accreditation of Allied Health Education Programs (CAAHEP), upon the recommendation of the Cytotechnology Programs Committee of the American Society of Cytopathology. CAAHEP is located at 1361 Park Street, Clearwater, FL 33756. Their telephone number is (727) 210-2350. The program is accredited through 2025.

## PUBLIC HEALTH

The College's Public Health Program holds accreditation from the Council on Education for Public Health (CEPH), located at 1010 Wayne Avenue, Suite 220, Silver Spring, MD 20910. Their telephone number is (202) 789-1050. The program is accredited through 2026.

# Board of Trustees

Visit https://www.acphs.edu/about/leadership/board-trustees for an up-to-date list of Board of Trustees members.

# 2024-25 Academic Calendar

| | |
|---|---|
| Aug 19-23 | Orientation Week |
| Aug 26 | 1st Day of Fall 2024 Term |
| Sep 2 | No Classes/Labor Day |
| Oct 14 | No Classes/Indigenous People Day |
| Oct 15 | Classes Resume/Mon Sched |
| Nov 27-29 | Thanksgiving Break |
| Dec 9-13 | Final Exams |
| Dec 16-Jan 10 | Winter Break |
| Jan 13 | 1st day of Spring 2025 Term |
| Jan 20 | No Classes/MLK Day |
| Feb 17 | No Classes/President Day |
| Feb 18 | Classes Resume/Mon Sched |
| Mar 3-7 | Spring Break |
| Apr 30 | Reading Day |
| May 1-May 7 | Final Exams |
| May 17 | Commencement |
| May 19-Jun 27 | Summer Session I Term |
| May 26 | No Classes/Memorial Day |
| July 7- Aug15 | Summer Session II Term |

2024 – 2025

IPPE: May 13th, 2024 – August 23rd, 2024

APPE: May 20th, 2024 – May 9th, 2025

2025 – 2026*

IPPE: May 12th, 2025 – August 22nd, 2025

APPE: TBD

# FERPA

ACPHS maintains a strict adherence to the Family Educational Rights and Privacy Act of 1974 (FERPA) regulations posted on the College's website and distributed to students at the beginning of each semester and whenever a change in policy occurs. The adherence applies to both students enrolled in classes on the campus and those taking classes at a distance. FERPA affords students the following rights with respect to their education records:

(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) Registrar 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 by writing to the Registrar. 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 the College's food service providers, the Bookstore, a database provider, 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, the National Association of Boards of Pharmacy and National Association of Boards of Pharmacy Foundations 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. Also, FERPA authorizes disclosure to officials of another school, school system, or institution of postsecondary education where the student seeks or intends to enroll, or where the student is already enrolled so long as the disclosure is for purposes related to the student's enrollment or transfer.

(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

## TUITION and FEES

Below are the **2024-2025 tuition and fees** for Albany College of Pharmacy and Health Sciences. The college's Board of Trustees approves these amounts annually.

# TUITION

| Program | Amount |
|---|---|
| Pre-Pharmacy and B.S. Programs [1] | $40,200 |
| Professional Pharmacy Program, P1-P4 [2] | $46,500 |
| Graduate (M.S.) Programs [3] | $1,550/credit hour |

# STUDENT FEES

| Fee Type | Fee Amount |
|---|---|
| Meal Plan [4] | $5,500 |
| Student Health Insurance Fee [5] | $3,280 |
| International Student Fee | $200 |
| Activity Fee - Full Time Students [6,7] | $350 |
| Activity Fee - Part Time Students [6,7] | $99 |
| Orientation Fee - New and Transfer Students [6,7] | $350 |
| Graduation Fee - For graduation students only | $100 |
| Technology Fee - Full Time Students [6,7] | $275 |
| Technology Fee - Part Time Students [6,7] | $125 |
| Health and Wellness Fee - Full Time Students [6,7,9] | $300 |
| Health and Wellness Fee - Part Time Students [6,7] | $130 |

## PARKING PERMITS

| Fee Type | Fee Amount |
|---|---|
| Albany Commuter | $280 |
| Albany Resident (9 month) | $360 |

## HOUSING

| Fee Type | Fee Amount |
|---|---|
| South Hall | $7,000 |
| Holland/Princeton Suites - 2 Bedroom | $8,200 |
| Holland/Princeton Suites - 4/5 Bedroom | $7,400 |
| Resident Activity Fee | $40 |

## TUITION & FEES DESCRIPTIONS

1. Applies to the two pre-pharmacy years and all years of the B.S. programs. The pre-pharmacy and B.S. tuition is charged at a rate of $1,340 per credit hour on a part-time basis (11 credit hours or less). The fee for auditing is the same as that charged for part-time coursework.
2. P1 - P4 refers to the first, second, third, and fourth professional years of the Pharmacy Program. This is typically Years 3-6 for students. The P1-P4 tuition is charged at a rate of $1,550 per credit hour on a part-time basis (11 credit hours or less). The full-time (12 credits or more) tuition charge is $23,250 per semester. The fee for auditing is the same as that charged for part-time coursework.
3. Tuition is charged at a rate of $1,550 per credit hour for graduate courses. The maximum total per semester is $23,250 which applies to graduate students taking 15 or more credit hours. The fee for auditing is the same as that charged for part-time coursework.
4. Amount will vary based on choice of meal plan option. All students in Notre Dame and South Hall residence facilities are required to purchase the Gold meal plan.
5. Assessed to all students unless proof of other insurance is provided by the August 1 deadline.
6. Non-refundable after the first day of classes.
7. Required for students.
8. All undergraduate students are required to have a laptop computer while enrolled at ACPHS.
9. P4 students have the option to opt-in to the student health fee.

# GENERAL ABILITY OUTCOMES

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.

Foundational Literacies

| | **Defined as:** |
|---|---|
| Foundational Literacies | **Literacy**<br><br>1. Produce and analyze written language in English within the conventions and genres of a particular discipline.<br>1.1 Utilize grammar, writing conventions, and discipline-specific genre to facilitate and convey meaning.<br>1.2 Create purpose-driven compositions, taking into account diverse audiences.<br>1.3 Demonstrate use of the writing process including pre-writing, drafting, and revision.<br>1.4 Selectively incorporate and correctly attribute other peoples' ideas and writing.<br>1.5 Identify the thesis or purpose of a text<br>1.6 Critically evaluate how statements within a text support an argument and are related to and build on one another via overall structure, textual features, and discipline-specific genre. |
| | **Numeracy**<br><br>2. Use numbers and other symbols to understand and express quantitative relationships, employ quantitative methods, and draw inferences from mathematical models.<br><br>2.1 Provide accurate explanations of information presented in mathematical forms.<br><br>2.2 Competently convert relevant information into appropriate mathematical forms (e.g., equations, graphs, diagrams, tables, words).<br><br>2.3 Complete calculations to comprehensively solve problems.<br><br>2.4 Use the quantitative analysis of data as the basis for judgments, drawing reasonable and appropriate conclusions from this work. |
| | **Scientific Literacy**<br><br>3. Use the scientific method to acquire new knowledge: to include identification of a problem statement, formulation and testing of a hypothesis, identification and control of variables, experimentation design, and interpretation of data generating evidence-based conclusions to include potential future directions.<br>3.1 Utilize relevant observations for problem investigation.<br><br>3.2 Construct an appropriate method of inquiry, developing a detailed hypothesis to include pertinent facts, considering multiple points of view.<br><br>3.3 Explain the purpose of the experiment, stating the materials required to complete the procedure. |

3.4 Review experimental variables and controls choosing modifications as appropriate for experimentation performed.

3.5 Collect, review and analyze evidence to reveal important patterns, differences or similarities related to hypothesis.

3.6 Review results relative to the hypothesis with consideration for further/future experimentation.

3.7 Extrapolate conclusions from generated data, considering opposing viewpoints and related outcomes that are identifiable.

**Information Literacy**

4. Determine the nature and extent of information need; find, access and critically evaluate information to accomplish a specific purpose and use information in an ethical and legal manner.
   - 4.1 Define the scope of the information need.
   - 4.2 Identify relevant key concepts or main ideas related to information need and identify the different types and formats of information sources, employing good judgment in the selection and use of sources.
   - 4.3 Determine appropriate keywords and related search terms, developing and executing effective search strategies using appropriate tools.
   - 4.4 Apply appropriate criteria to evaluate the reliability, relevance, authority, and accuracy of information found and critically evaluate the creators of sources, including tone, subjectivity, and biases.
   - 4.5 Acknowledge the original ideas of others through proper attribution and citation.

**Technological Literacy**

5. Apply appropriate computing tools and electronic resources to address specific tasks related to data storage, presentation of information, and organization.
   - 5.1 Select the most appropriate tool(s) and technology to address a specific task.
   - 5.2 Describe the basic security issues with various types of information, information use, and information devices.
   - 5.3 Use online and electronic resources to communicate and collaborate.
   - 5.4 Use technological resources and applications to support personal, academic, and professional productivity.
   - 5.5 Use technology to create presentational content that is equally accessible.

**Cultural Literacy**

6. Explain the diversity within and among cultures and human experiences and summarize its impact on the individual and society.
   - 6.1 Demonstrate and explain the need for further study of other cultures by creating and seeking answers to additional pertinent questions
   - 6.2 Describe own cultural rules and biases and both identify and articulate the value in bringing new perspectives to those rules and biases.
   - 6.3 Analyze intellectual, emotional, and material elements important to members of at least one other culture.

**Social Justice, Equity, and Responsibility Literacy**

7. Describe how social structures produce inequalities in group outcomes, and identify, evaluate, and consider how various policies and practices alter these outcomes.
   - 7.1 Describe how various elements inherent to one's own culture and to other cultures have historically been privileged or undervalued.
   - 7.2 Analyze at multiple levels (e.g., individual, group, community) the impact of history, culture, institutions, practices or policies on diversity and equity issues.
   - 7.3 Analyze the impact of potential equity strategies on affected groups in relation to a specific equity issue.
   - 7.4 Explain the potential for the power of diversity to serve as a source of creativity, innovation, and productive collaboration.

**Civic Literacy**

8. Analyze complex issues that have public consequences, participate in democratic discourse, and identify opportunities to help individuals and improve public policy.
   - 8.1 Analyze knowledge (facts, theories, etc.) from an academic study/ field/discipline, making relevant connections to civic engagement that has public consequences.

| | |
|---|---|
| | 8.2 Communicate in meaningful public discourse (i.e., debate, lobby, advocate), showing ability to express, listen to, and take into account ideas and messages based on others' perspectives.<br>8.3 Identify intentional ways to participate in civic contexts and structures and begin to reflect or describe how these actions may benefit individual(s) or communities. |
| | **Oral-Visual Communication Literacy**<br><br>9. Produce and interpret spoken language and embodied communication, including prepared presentations and extemporaneous speech designed to increase knowledge, foster understanding, or promote change in the audiences' attitudes, values, beliefs, or behaviors.<br>9.1 Develop an organizational pattern that enhances the cohesion of the message. (i.e., specific introduction and conclusion, sequenced material within the body, and transitions)<br>9.2 Choose language that is imaginative, accessible (e.g., translating jargon), and inclusive.<br>9.3 Project confidence via delivery techniques (e.g., volume, eye contact, hand gestures, facial expressions, posture, movement, expressiveness, and speed).<br>9.4 Use visual communication that supports the effectiveness of the message (e.g., slides data visualization, diagram, photograph, illustration).<br>9.5 Practice active listening (e.g., attentiveness, open-mindedness, and literal/critical comprehension) during oral presentations, performances, and/or groupwork. |

## GELOs - Competencies

| | Defined as: |
|---|---|
| Competencies | **Critical Thinking and Creative Problem Solving**<br><br>10 Identify and evaluate ideas and information to devise innovative ways to address complex problems. Formulate responses to make informed, rational, and responsible decisions through the application, synthesis, or repurposing of knowledge to implement solutions.<br><br>10.1 Describe the problem and assess information from multiple sources.<br>10.2 Develop an objective and comprehensive analysis, considering assumptions and biases.<br>10.3 Create a novel idea, question, approach, or product to address the problem.<br>10.4 Resolve problems by applying logical reasoning to determine appropriate pathways for effective solutions. |
| | **Values and Ethical Decision-Making**<br><br>11 Identify ethical problems and apply ethical principles, value statements, and other relevant considerations and skills (e.g., critical thinking) in order to act prudently in a diverse society.<br>11.1 Analyze core beliefs and their origins at the individual and/or group level.<br>11.2 Identify questions about ethical/moral issues or value judgments questions when presented in a complex, multilayered context.<br>11.3 Apply principles to the solution of an ethical/moral issue or question.<br>11.4 Evaluate responses to ethical/moral issues or questions (objections, responses to objections, assumptions, implications). |
| | **Collaboration**<br><br>12 Work effectively with others towards a common goal by engaging diverse perspectives and building consensus.<br>12.1 Explain how social and professional roles create distinct perspectives and priorities that shape our approaches to collaboration.<br>12.2 Integrate social skills (active listening, empathy, self-awareness, tactfulness) to cultivate an inclusive environment where people are comfortable sharing and discussing disparate viewpoints.<br>12.3 Integrate decision-making processes and conflict management strategies to negotiate solutions that satisfy disparate interests. |

# ACADEMIC POLICIES

***Exceptions to Academic Policies:*** *ACPHS has established its College-wide academic policies to maintain the quality of our educational programs and to ensure that all students are treated equitably. On the rare occasion that an exception to these policies is warranted, permission for the exception may be granted by the respective Dean. It is expected that the student will consult with the appropriate individuals (i.e., academic or faculty advisor, registrar, program director, department chair) prior to petitioning the respective Dean.*

**Absences Due to Athletic Events**

Recognizing that regular class attendance and on-time participation in classroom assessments (i.e. exams) are critical to the success of student athletes, it is expected that athletic competition schedules will be created in a way that minimizes student absence from class and regularly scheduled class activities. Student athletes are likewise expected to arrange their class schedules in a way that minimizes conflicts between class and contests. When conflicts between class and competitions (not practices) are unavoidable and/or are due to scheduling beyond ACPHS control, faculty should treat the absence as excused and provide reasonable accommodation for the student athletes as indicated in their course syllabus. On the rare occasion that accommodations are not possible, or where there is a compelling academic reason, a faculty member may deny that student athlete accommodation. If denied accommodation, the student can appeal to the Department Chair in which the course is housed to determine the possibility of providing accommodations.

**Academic Minor**

An academic minor is offered by a department. It is a defined program which reflects a coherent body of knowledge in one or more disciplines. A minor requires a minimum of 18 credit hours of coursework. Unless listed otherwise in the description of the specific minor, the following apply to all minors.

- At least half of the required credits for the minor must be at an advanced level (300 level or above) as defined by the minor.
- Coursework for an academic minor is presented with the same intellectual rigor as that expected of courses which fulfill requirements of a major.
- To successfully complete an academic minor, a cumulative minimum GPA of 2.0 must be achieved in courses required for the minor.
- A minimum of 6 credits must be provided by non-required courses of the program (free electives/professional electives/bioselectives/directed electives/liberal arts electives are not considered required courses for the purposes of Minor completion.
- A student may not minor in a subject area in which that student is also completing a major.
- A minor cannot be completed after graduation.
- One course (3 to 4 credits) required for the minor may be taken outside ACPHS with approval from the chair of the department which houses the minor.

All courses for the minor must be taken for a grade unless P/F is the only option."

# ACADEMIC POLICIES

**Attendance Policy**

Students are expected to attend all assigned classes. Courses may have attendance policies listed in their syllabus that supersede this policy. The College expects instructors to be reasonable in accommodating students whose absence from class resulted from: personal illness; family bereavement; or observance of major religious holidays or other compelling circumstances. For all short-term absences such as one-day sickness or car troubles, etc., students are expected to communicate directly with their faculty to inquire about processes for any missed coursework. Instructors and the College have the right to request documentation verifying the basis of absences resulting from the above factors. For longer term absences due to illness, students should contact Student Affairs along with supporting medical documentation from their health provider. The Office of Student Affairs will notify their instructors and triangle of success of their absence.

**Auditing of Courses**

The auditing of ACPHS courses is allowed on a space-available basis with the approval of the instructor and chair of the department that offers the course. The degree of participation expected of the auditor is at the discretion of the instructor. Ordinarily, auditors are expected to attend classes regularly, complete reading assignments, and participate in discussions, but are excused from examinations. Auditors meeting these expectations will have a grade of "AU" recorded on their transcript. Auditing a course is limited to those individuals otherwise eligible to register for the class (i.e. matriculated or non-matriculated students). A maximum of one course may be audited per semester. Auditors are subject to the full tuition and fees of the course. Registration of auditors will be done following the completion of the regular registration process. No withdrawals or refunds are granted. Laboratory courses, workshops and other courses that require significant small group work and one-on-one instruction may not be audited. Audited courses do not count in determining a student's course load and do not count toward full-time status. An audited course may be taken for credit at a later date. Audited courses may not be used to satisfy pre-requisites of another course. Auditing a course does not count as having "attempted" the course at ACPHS for the purposes of remediation.

**Class Cancellations**

Faculty shall hold classes as scheduled in accordance with college regulations. Faculty absences caused by illness, personal responsibilities such as jury duty, professional obligations such as attendance at scholarly meetings or occasional professional service are excusable, but must be reported to the Department Chair in advance and alternate measures must be identified so that the class schedule is not interrupted. For hybrid/blended courses or courses with synchronous online components, faculty may alter the delivery method in lieu of cancelling a regularly scheduled face-to-face or synchronous class session. On rare occasions, instructors may be delayed or unable to attend a class due to emergency circumstances. In the event that an instructor does not appear in class and has not notified class of his/her expected arrival time, the class for that day is cancelled after 15 minutes of the scheduled start of that class.

# ACADEMIC POLICIES

**Course Concerns Procedure**

Students are encouraged to discuss concerns about grading and other academic issues with faculty according to the following sequence:

1. Discuss with the faculty member teaching the course or section of the course. The process must be initiated within two weeks of the examination, assignment, or academic incident that is the subject of the appeal.
2. If the concern is not resolved satisfactorily with the faculty member, consult the course coordinator.
3. If an acceptable resolution is not achieved with the course coordinator, the student may contact the Department Chair, who has final say.

***Note:*** Should the Faculty member or the course coordinator be a Department Chair, students can appeal in writing to the respective Dean. The respective Dean's decision will be final.

**Course Withdrawal**

- Students are allowed to drop a course within the two weeks of the semester without the course appearing on their transcript.
- From the end of week 2 to the end of week 12 (or until 75% of the course is completed), students are allowed to withdraw from a course only with permission of the course instructor and the grade of a "W" will be recorded on the transcript.

Students are allowed to withdraw from a course after the 12th week of the semester (or 75% of the course is complete) only as a result of a program change or for extenuating circumstances such as a medical situation or family emergency. Grades of "W" are not calculated into the GPA. Find the course withdrawal request form on the ACPHS Student Portal.

**Courtesy Attendance in Classes**

Courtesy attendance of ACPHS courses is allowed on a space-available basis. This type of attendance is open to students of the College and other select individuals including, but not limited to, faculty or staff of the College, individuals employed by the College's clinical partners (i.e. clerkship, rotation, or internship sites), and graduate students attending undergraduate courses. There is no fee for or permanent record kept of courtesy attendance in a class. For ACPHS students and faculty permission of the instructor is all that is required. For all others, a formal request to attend classes stating the course and reason why permission is requested should be sent to the appropriate chair and instructor prior to the start of classes. Courtesy attendance is not allowed in laboratory courses, workshops and other courses that require small group work and one-on-one instruction. If the courtesy attendance is determined to be detrimental to the educational environment of the class, the attendee may be requested to stop attending.

# ACADEMIC POLICIES

**Criminal Background Checks**

For those ACPHS degree programs that 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. Rotation sites hosting experiential education students may deny a student's participation in the experiential program because of a negative finding, which 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.

**Curricular Copyright**

Unless indicated otherwise, all course materials including but not limited to, the syllabus, lecture slides, note packets, exams, quizzes, assignments, and laboratory activities are the copyrighted property of ACPHS. Materials are intended for the sole use of the students enrolled in this course. Sharing, copying, recording, posting or otherwise distributing these materials without permission of the course coordinator is prohibited. Violations may be prosecuted under the College's student conduct policy.

**Dean's List**

Dean's List standing is given to full-time students (excluding those in MS programs and those in the fourth professional year of the PharmD program) who have a semester GPA of 3.5 or greater, provided there are no other deficiencies. Students in the fourth professional year of the pharmacy program will be eligible to earn recognition in the form of Experiential Honors in place of Dean's List recognition. Dean's List students are informed and recognized for this honor at the end of each academic semester by the Dean.

**Dual Degree**

A dual degree results in the awarding of two separate degrees, which represent credentialing in two distinct fields. To meet the criteria for a dual degree, students must complete at least 30 credits of unique coursework between the two curricula (such coursework is not double-counted). Dual degrees couple graduate and undergraduate curricula, graduate and professional curricula, or sufficiently diverse undergraduate curricula. Permissible dual degrees at ACPHS include: BS/MS, BS/PharmD, and MS/PharmD. It is NOT permissible for students to receive dual degrees in our Master's programs (e.g. MS/PSM, MS/MSBS, MSPS/MSMBS, etc.).

**Incomplete Grade Policy**

A grade of Incomplete should be considered only when extenuating circumstances prevent the completion of work on time. It is at the instructor's discretion to grant or deny a grade of Incomplete. The grade of Incomplete must be submitted by the instructor to the Registrar by the last day of grade submission for that specific term. An "I" grade does not allow a student to meet a course prerequisite, thus no student with an I grade can be enrolled in subsequent course. Students cannot graduate with an Incomplete grade on their record.

# ACADEMIC POLICIES

**Long-Term Absence**

Students may request up to a one-year leave of absence (i.e., current and subsequent semester) or within a semester leave (e.g., several days to a few weeks) from the College for long-term medical or other extenuating personal reasons which prevent the student from completing the semester. A student requesting a leave of absence from the College is required to provide written notice to the Vice President for Student Affairs in consultation with the student's Triangle of Success. For leave, the request must state the reason(s) for the leave, the duration desired and supporting documentation. In some cases, the Vice President for Student Affairs may request to meet in person with the student. The Vice President for Student Affairs makes a decision on the request and communicates the decision to the student within one week of receipt of the request and disseminates approved leave decisions to the student's Triangle of Success.

**Student Conduct Suspension and Expulsion**

See Student Handbook

**Summer Session Courses**

ACPHS students are allowed to take courses during the summer as long as doing so meets the general academic requirements, course repeat, and transfer policies. A maximum of 10 semester hours of coursework is allowed during any summer at institutions other than ACPHS.

**Waiving Course Prerequisites**

Waiving the prerequisite requirement(s) can only be granted if a written/electronic approval from the course coordinator is received by the Registrar office. Satisfying pre-requisites using similar courses from other academic institutions must receive prior approval of ACPHS course coordinator.

**Withdrawing from the College**

A student who is withdrawing from the College must complete the College Withdrawal Form (found on the Register's Intranet page) and submit it to Registrar@acphs.edu. Students who withdraw from the College prior to the end of week 9, will receive grades of "W" for all registered courses in that semester. After week 9 of the semester, students who wish to withdraw from the College must complete the College Withdrawal Form (found on the Registrar's Intranet page) and meet with their Triangle of Success. At the discretion of the Triangle of Success, a grade of "W" may be assigned to courses or course instructors may be asked to assign a grade.

# TRANSFER CREDIT POLICY

At the time of admission to an ACPHS program, new, incoming students may request transfer of academic credit from Advanced Placement (AP) courses, International Baccalaureate (IB) or CLEP exams, or undergraduate college courses taken at another US accredited academic institution. The evaluation of academic credit for new first-year or transfer students is coordinated by the Office of Admissions (Enrollment Management) and Registrar. (Students entering the P1 year of the PharmD program have academic credit awarded based on coordinated evaluation between the Office of Admissions and the Pharmacy Admissions Committee.)

- To receive credit for AP courses, scores of 4 or 5 are required.
- To receive credit for IB courses, scores of 5 or above are required.
- To receive credit for the College Level Examination Program (CLEP) examination, a score of 70 or better must be achieved. CLEP credits will only be accepted for elective classes.
- Grades of C or better are required to receive credit for college courses taken at another regionally accredited academic institution.

Decisions made regarding acceptance of transfer credit are final once the semester begins. (Note: A student's transfer credits may be reevaluated when they change programs, as different policies apply for different programs.)
For a listing of institutions where transfer credit has been accepted previously, please contact the Registrar's office.
Acceptance of transfer credit may impact a student's ability to maintain their full-time status (12 credit hours or more per semester). Students should consult their Program Director(s) and an Admissions Counselor for guidance.
Exceptions to these procedures may be made on a specific, case-by-case basis for individual students by their Program Director with consultation with the appropriate Department Chair.

## BS Program Transfer Policies

Up to 68 credits may be transferred from another institution.
Taking Courses at Other Academic Institutions: Upon matriculation, BS students are strongly recommended to take all required "core" or program specific coursework at ACPHS. Program Directors may identify specific courses which must be taken at ACPHS, regardless of matriculation date. See specific program guidelines at https://www.acphs.edu/academics/bachelors-programs.
Students wishing to take required courses during an academic term where the course is not offered at ACPHS may take that course at another institution, upon receiving approval from the Program Director or other designee in which the student's program resides (e.g., Department Chair).

- A maximum of 10 semester hours of required coursework may be taken at institutions other than ACPHS. This credit hour limitation does not apply to courses taken for remediation at another institution. (Students enrolled in degree programs, such as the joint MPH program with SUNY Albany, are exempt from the 10-credit hour limitation.)
- Any number of elective credits can be taken at an institution other than ACPHS.
- ACPHS students are allowed to take courses during the summer as long as doing so meets the General Academic Requirements and Course Repeat policies.
- Grades from credits transferred to ACPHS as part of a joint degree program (through an affiliation agreement) will be counted towards a students' GPA at ACPHS.

## Policies for Students Enrolled in Joint Degree Programs

Required ACPHS Courses for Joint Degree Program Students (by joint health professions program):+
BS/ MD ACPHS- Upstate Medical Accelerated Scholars Program

- General Bio I & II,
- General Chemistry I & II,
- Organic Chemistry I,
- Biochemistry,
- College Physics I and II,
- Statistics *
- English Elective*
- Composition*

BS/ DO ACPHS- NYITCOM Pre Med / Doctor of Osteopathic Medicine Program

- General Bio I & II,
- General Chemistry I & II,
- Organic Chemistry I,
- College Physics I and II,
- Biochemistry,
- English Elective*
- Composition*
- Strongly Recommended:
    - Calculus, Anatomy, Genetics, Physiology, Biochemistry, Behavioral Sciences*

BS/ DO ACPHS- LECOM Early Assurance Program (7 and 8 year)

- General Bio I & II,
- General Chem I & II,
- Organic Chem I & II,
- College Physics I,
- Biochemistry,
- Genetics,
- Behavioral Sciences (6 cr)*,
- English (6 cr)*

BS/ DO ACPHS – LECOM Dental Medicine Early Assurance Program

- General Bio I & II,
- General Chemistry I & II,
- Organic Chemistry I & II,
- Biochemistry,
- English (6 cr, including Composition)*
- Strongly Recommended:
    - Anatomy and Physiology I & II, Genetics, Immunology, Histology, Cell Biology, Microbiology, College Physics*

BS/ MS ACPHS- AMC CPAS Joint Degree Program

- General Bio I & II,
- General Chemistry I & II,
- Organic Chemistry I or Biochemistry,
- Anatomy & Physiology I & II,
- Microbiology,
- Statistics,
- Psychology*
- English Composition *

* Courses that Health Professions program will accept from a non-ACPHS institution, however ACPHS program may require students to take these courses at ACPHS
+ Academic programs at ACPHS may require the strongly recommended courses be taken at ACPHS and/ or the courses that the Health Professions program will accept from another institution may be required by ACPHS.

## Pre-Pharmacy Transfer Credit Policies

Entering first year pre-pharmacy students may receive transfer credit (AP or college course) for any courses deemed equivalent to the following ACPHS courses:

- HUM 115: Voice and Identity
- Humanities Methods and Approaches selective
- Science and Health through the Humanities Lenses selective
- PSY 101: Psychology (3)
- COM 115: Principles of Communication (3)
- MAT 111: Calculus (4)
- General/Liberal Arts Electives (9-12 credits; a maximum of 3 credits of which count only as General Electives)
- CHE 111 and CHE 121: General Chemistry I and II (8)*
- BIO 111 and BIO 121: General Biology I and II (8)*
- BIO 210: Microbiology (4)**
- CHE 211 and CHE 221: Organic Chemistry I and II (8)**
- PHY 245: Physics for Life Sciences (4)**
- Science Selective (up to 6 credits; 200+ level chemistry, physics, biology or math course that does not duplicate a required course at ACPHS – must have approval of Pre-Pharmacy Program Co-Directors)**
- MAT 145: Elementary Statistics (3)**

## Provisions for First Year Pre-Pharmacy Students:

*Entering first year students may receive transfer credit (AP or college course that are deemed equivalent to ACPHS courses) for only one of the following sequences: General Biology or General Chemistry. Additionally, academic credit for the course must have been earned within the last three years. Transfer of partial credit for sequential courses is not permitted (e.g., transfer credit for General Biology I and II is allowed while the transfer of credit for General Biology I alone is not).
**Entering first year students may receive up to 8 transfer credits (AP or college course that are deemed equivalent to ACPHS courses) for the following courses: Microbiology, Organic Chemistry I and II, Physics for the Life Sciences, Science Selective, and Elementary Statistics.
Entering second year students may receive transfer credit (AP or college course) for any courses deemed equivalent to ACPHS courses:

- HUM 115: Voice and Identity
- Humanities Methods and Approaches selective
- Science and Health through the Humanities Lenses selective
- PSY 101: Psychology (3)
- COM 115: Principles of Communication (3)
- MAT 111: Calculus (4)
- General/Liberal Arts Electives (9-12 credits; a maximum of 3 credits of which count only as General Electives)
- CHE 111 and CHE 121: General Chemistry I and II (8)
- BIO 111 and BIO 121: General Biology I and II (8)
- CHE 211 and CHE 221: Organic Chemistry I and II (8)*

- BIO 210: Microbiology (4)*
- PHY 245: Physics for Life Sciences (4)*
- Science Selective (up to 6 credits; 200+ level chemistry, physics, biology or math course that does not duplicate a required course at ACPHS – must have approval of Pre-Pharmacy Program Co-Directors)*
- MAT 145: Elementary Statistics (3)*

### Provisions for Second Year Pre-Pharmacy Students:

*In addition to transfer credit for coursework required in the first year of the program, students transferring into year 2 of the pre-pharmacy program may receive up to 8 transfer credits (AP or college course that are deemed equivalent to ACPHS courses) for the following courses: Organic Chemistry I and II, Microbiology, Physics for Life Sciences, Science Selective, and Elementary Statistics. Transfer of partial credit for sequential courses is not permitted (e.g., transfer credit for General Biology I and II is allowed while the transfer of credit for General Bio I alone is not).

## *COURSE EQUIVALENCIES FOR COLLEGE AND AP CREDIT:*

For first-year applicants and second-year transfer applicants (Special restrictions enumerated above apply to pre-pharmacy students).

| Course Area | Credit Accepted | |
|---|---|---|
| Calculus | AP or College Credit | A 3-credit college level course in Calculus or a score of 4 or higher on the AP Calculus exam is accepted as transfer credit. |
| Elementary Statistics | AP or College Credit | A 3-credit college level course in Statistics or a score of 4 or higher on the AP Statistics exam is accepted as transfer credit. |
| General Biology I and II | AP or College Credit | A 4-credit college course in General Biology appropriate for a science or engineering major and including lab receives credit for General Biology I. An 8-credit sequence of college courses in General Biology appropriate for a science or engineering major and including lab receives credit for General Biology I and II. |
| General Chemistry I and II | | A 4-credit college course in General Chemistry appropriate for a science or engineering major and including lab receives credit for General Chemistry I. An 8-credit sequence of college courses in General Chemistry appropriate for a science or engineering major and including lab receives credit for General Chemistry I and II. |
| General Electives | AP or College Credit | Any AP course or college course from an accredited institution not applied to fulfill another curricular requirement may be accepted as transfer credit for a General Elective. |

| | | |
|---|---|---|
| College Physics I and II | AP or College Credit | AP Physics 1 and AP Physics 2 receive credit for College Physics I and II. AP Physics 1 or AP Physics 2 taken alone do not receive credit. Credits beyond what is required for the student's program will be counted towards general electives. AP Physics C: Mechanics transfers 4 credits of general elective credit. AP Physics C: Electricity and Magnetism transfers 4 credits of general elective credit.<br>An 8-credit sequence of college credits in Physics appropriate for a science or engineering major and including lab receives credit<br>for College Physics I and II. A shorter sequence of college credits in Physics doesn't receive credit. |
| Liberal Arts Electives | AP or College Credit | Any AP or college courses from accredited institutions in the following disciplines/subjects may be applied as liberal arts elective credit: Anthropology, Archaeology, Area Studies, Art, Art History, Communication, Composition, Economics, English, Ethics, Gender Studies, Geography, Government, History, Languages, Law, Liberal Studies, Medieval Studies, Music, Political Sciences, Public Health, Performing Arts, Philosophy, Psychology, Religious Studies, Social Studies, Sociology, Women's Studies. |
| Organic Chemistry I and II | College Credit | A 4-credit college course in Organic Chemistry appropriate for a science or engineering major and including lab receives credit for Organic Chemistry I. An 8-credit sequence of college courses in Organic Chemistry appropriate for a science or engineering major<br>and including lab receives credit for Organic Chemistry I and II. |
| Microbiology | College Credit | A 4-credit course appropriate for a science or engineering major and including lab. |
| Principles of Communication | AP or College Credit | A single 3-credit college level course in composition/writing will be accepted as transfer credit for Principles of Communication. A score of 4 or higher on the AP English Language and Composition exam will also be accepted as transfer credit for POC. |

## *COURSE EQUIVALENCIES FOR IB CREDIT:*

For Bachelor of Science first-year applicants and second-year transfer applicants and pre- Pharmacy first-year applicants and second-year transfer applicants.
International Baccalaureate Diploma Program (IB): SL denotes stand-level; HL denotes higher-level.

| Course or Course Area | Notes |
|---|---|

| | |
|---|---|
| Academic Reading and Writing (ARW) | Students scoring a grade of 4 or higher on any of the following courses place out of Academic Reading and Writing:<br><br>• SL IB English A<br>• HL IB English A<br>• SL IB English B<br>• HL IB English B |
| Calculus I | Students scoring a grade of 5 or higher on HL IB Mathematics receive credit for Calculus I (4 credits). |
| College Physics I | Students scoring a grade of 5 or higher on HL IB Physics receive credit for College Physics I and II (8 credits). |
| General Biology I and II | Students scoring a grade of 5 or higher on HL IB Biology receive credit for General Biology I (4 credits). |
| General Chemistry I and II | Students scoring a grade of 5 or higher on HL IB Chemistry receive credit for General Chemistry I and II (8 credits). |
| General Electives | Students scoring a grade of 5 or higher on any Higher Level (HL) International Baccalaureate (IB) course may receive 6 general elective credits per course. Students scoring a grade of 5 or higher on any Standard Level (SL) IB course may receive 3 general elective credits per course. IB transfer credit should be applied in the following order of priority: (1) specific course credit; (2) liberal arts elective credit; and (3) general elective credit. |
| General Psychology | Students earning a score of 5 or higher on the SL IB Psychology exam may receive transfer credit for PSY 101: General Psychology. Students earning a score of 5 or higher on the HL IB Psychology exam may receive transfer credit for General Psychology and 3 liberal arts elective credits. |
| Introduction to Economics | Students earning a score of 5 or higher on the SL IB Economics exam may receive transfer credit for ECN 101: Introduction to Economics. |
| Liberal Arts Electives | Students scoring a grade of 5 or higher on any of the following HL IB courses will receive 3 credits of Liberal Arts electives per course:<br><br>• Classical Languages<br>• Dance<br>• Film<br>• History of the Islamic World<br>• Music<br>• Philosophy<br>• Social and Cultural Anthropology<br>• Theater<br>• Visual Arts |

| | |
|---|---|
| | Students earning a grade of 5 or higher on any of the following SL IB exams may receive 3 credits of liberal arts elective credit per course completed: Geography, Global Politics, Social and Cultural Anthropology; History of the Americas; World Religions; Philosophy; Foreign Language Courses |
| Principles of Communications | Students scoring a grade of 6 or higher on the HL IB of English A receive 3 credits for Principles of Communication. |

## Transfer Policies for the Humanities for the Health Sciences Sequence

Any credits (College, AP, or IB credit) within the humanities, as defined below, will be accepted as transfer credit for courses in the Humanities for the Health Sciences Sequence. Transfer credit within the Humanities will be applied in the following order regardless of the specific discipline of the credit:

- Humanities electives
- Humanities Methods and Approaches selective
- Science and Health through the Humanities Lenses selective
- Voice and Identity
- Free electives

For the purposes of this policy, courses within the fields of Area Studies, Art, Art History, English, Ethics, Gender Studies, History, Literature, Music, Performing Arts, Philosophy, Race Studies, Religious Studies, Women's Studies will be considered Humanities courses.
This policy should not be construed as impacting the humanities transfer policies for students directly entering the Pharm. D. program as P1, P2, P3, or P4 students. Additionally, students in any program bringing in 45 or more transfer credits to the College are exempt from this policy.

## Pre-Requisites and Transfer of College Course Credit for PharmD Students

Students entering the P1 year of the PharmD program are required to complete all of the required pre-requisite coursework prior to enrolling. In almost all cases, coursework required for entry into the P1 year must be completed by May 31 preceding P1 entry. In select cases, per the permission of the Pharmacy Admissions Committee (PAC), a student may be granted an allowance to take a specific course/s over the summer preceding P1, and granted a conditional acceptance into P1 pending the outcome of the summer course.

New students accepted to the P1 year of the PharmD program are required to take all required courses in the P1-P4 years of the program at the College. However, students with academic credit for biochemistry, molecular biology and/or immunology courses taken at other accredited academic institutions may request transfer of credit for these courses at the time of admission to the program if the following criteria are met:

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

Students submit a request for course credit transfer in writing to the Office of Admissions, along with the course description and syllabus from the academic institution where course credit was earned. If the specific course has been previously reviewed by ACPHS within three years, the Office

of Admissions will inform the student of that determination. If the course has not been reviewed within three years, the Office of Admissions forwards the course description and syllabus to the faculty members responsible for the course. The faculty jointly review and evaluate the course description and syllabus. The faculty members provide a written determination regarding whether the course should be considered equivalent to the ACPHS course. If the course is considered equivalent, the student will be provided credit for the course. The Office of Admissions sends all decisions on course credit transfer requests directly to the student in writing, pending receipt of final grades for courses for which a transfer is requested and informs the Registrar of the credit transfer.

Students seeking transfer with advance standing in the Pharmacy program from another professional program will be reviewed on a case-by-case basis by the PAC and Pharmacy program directors, department chairs, and Dean of Pharmacy, with input from relevant faculty.

### Graduate Level Course Transfer

Up to nine (9) credit hours of graduate level coursework may be transferred to ACPHS from other accredited academic institutions, subject to the approval of the Program Director and the respective Dean. To be considered for transfer credit, courses must have been taken in the past seven (7) years. Only courses where applicants have earned grades of B (83; B- is not accepted) or higher will be considered for transfer credit. Courses graded on a pass/fail basis will not be accepted for transfer credit. A request for awarding of transfer credit along with official transcripts of the coursework must be submitted to Admissions, at least one month prior to the start of the graduate program at ACPHS for consideration of transfer credit. The request will be reviewed by the Program Director and faculty with expertise in the course area, and they will make a recommendation to the respective Dean regarding the request. The respective Dean will make the final decision and inform the student, Program Director and the Registrar's office.

## Academic credits for military education and experience:

ACPHS has adopted the American Council on Education (ACE) guidelines to evaluate transfer credits for military education and experience across all the programs including B.S., M.S. and PharmD. Registrar's office will review military transcripts in collaboration with the faculty subject matter experts following the ACE guidelines and issue recommendations for course equivalences. Transferred credits will be counted towards 'General Electives'.

### Course Repeat and Remediation

Course Repeat: In some instances, students are allowed or required to repeat an entire course. Any grade of "F" must be repeated if the course is required for a student's degree.

- Students may repeat a course with permission of their advisor and course instructor by completing the "course permission form" (see Registrar's page on the Intranet for form). If a repeated course is completed at an institution other than ACPHS, it must be completed with a higher grade than the original course grade in order to have the credits transferred back to the College (minimum transferrable grade is a "C").
- Students will not be allowed to repeat a course during the academic year (fall or spring semester) at another institution if the same course is offered at ACPHS and will fit within the student's required course schedule. If the required course is not available at ACPHS, students may be allowed to repeat the course at another accredited institution and must be pre-approved according to the course permission policy found on the Registrar's intranet site.

- When repeating a required or elective course, a record of both courses will remain on the official transcript. If both courses are completed at ACPHS, the higher of the two course grades will be used in the calculation of the cumulative GPA. If the repeated course is completed elsewhere with a grade of C or better, neither the original nor the repeated course grade will be used in GPA calculations. The cumulative GPA will be updated after completion of the term after which the course was repeated.
- Independent study cannot be used for the purpose of repeating a course. The VPAA may grant an exception to this, in rare circumstances, in consultation with the respective Deans.
- A student's progression through the program may be delayed as a result of the required course repeat.

Course Remediation: In some instances, students are allowed or required to remediate a portion of a course. Course remediation may occur either during the course (within-course remediation) or after a course is completed (post-course remediation).

- Course coordinators have the authority to permit or not to permit remediation of course elements. It is the course coordinator's responsibility to determine what is permissible for remediation and it is expected that this will vary by course.
- If a course permits remediation, the syllabus must include a list of the course elements that may be remediated, the process by which remediation occurs, the criteria for what is permissible for remediation (i.e., a grade below a certain threshold on a course element) and the policy for calculating the final grade to include the remediated elements.
- All course remediation (within- and post-course) must be completed within two weeks of final grade submission to the Registrar, or for the fall semester, one week prior to the spring semester. Once remediation is complete, the course coordinator may request a grade change for the course in question. The original course grade will not show on the student's transcript or be included in the GPA calculations.
- In the case of post-course remediation, the final grade earned in the term of the course must be submitted to the Registrar at the close of the semester. Submission of a grade of incomplete is not acceptable. The Academic Standards Committee will review all grades and make recommendations based on the submitted grade. If the grade after the remediation process changes the academic status of the student from a probation or dismissal category, the Academic Standards Committee will review the revised grades and will, if necessary, amend recommendations to the Dean

## Doctor of Pharmacy Program: Repeat of Deficient Professional Coursework

Students in the professional years of the PharmD program (P1-P4) may repeat 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 C or better in courses repeated at other institutions. When repeating a required or elective course, a record of both courses will remain on the official transcript. If both courses are completed at ACPHS, the higher of the two course grades will be used in the calculation of the GPA. If the repeated course is completed elsewhere with a grade of C or better, neither the original nor the repeated course grade will be used in GPA calculations. The cumulative GPA will be updated during the term the course was repeated. A student's progression through the program may be delayed as a result of the required course repeat.

## Summer Session Courses

ACPHS students are allowed to take courses during the summer as long as doing so meets the General Academic Requirements, Course Repeat, and transfer policies. A maximum of 10 semester hours of coursework is allowed during any summer at institutions other than ACPHS.

## Policy for Internal Program Transfer

A student currently enrolled at ACPHS may apply for transfer from one academic program to another. An application form is available from the Program Director, the Registrar's office, or on the ACPHS Intranet at https://intranet.acphs.edu Academics tab/Registrar. The Program Director or Dean will review applications and render a decision to grant the transfer request based upon the student's academic status, academic record and 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.

Students wishing to transfer into the Doctor of Pharmacy program are required to apply through PharmCAS, Pharmacy College Application Service, at www.PharmCAS.org.
Transfer requests are considered at the end of an academic term and the approved change of program will be effective for the next academic term.

**See the most up-to-date Transfer Credit Policy at https://www.acphs.edu/transfer-credit-policy**

# CREDIT HOUR POLICY

Through this policy ACPHS affirms its use of the "credit hour" as the college's basic institutional measure of instructional level and rigor. The college further acknowledges the definition of credit hour provided by the US department of education (included below) upon which the details of this policy are based.

The US department of education defines "credit hour" as "…an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

1. One hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or,
2. At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution, including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours."

**Academic calendar**

The registrar is responsible for preparing the college's academic calendar. Semesters are to be fifteen instructional weeks in length including fourteen weeks of scheduled course meetings and one week of final exams. The semester schedule is adjusted as necessary to ensure that there are an equal number of scheduled Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays.

**Credit hour equivalencies**

ACPHS awards credit for the various instructions settings as described below. Note that this represents the minimum expectation the college has for each setting.

**Lecture, seminar, recitation**

One credit hour is awarded for the equivalent of fifteen 50-minute instructional sessions (12.5 total hours) that includes an expectation of two hours of outside study associated with each class session (30 total hours). Classes not giving final exams are expected to assign an out of class activity or final project to account for these hours.

**Laboratory**

One credit hour is awarded for laboratory courses having the equivalent of:

- Fifteen 150-minute instructional sessions for which little or no preparation is expected (2250 total instructional minutes, 37.5 total hours)
- No fewer than twelve 150-minute sessions for which significant outside work (no less than one hour per session) is expected (1800 total instructional minutes, 30 total hours)
- Other combinations of laboratory and outside work that reasonably approximates the above

**Combination lecture and laboratory courses**

Credit hours for courses including both lecture and laboratory components are calculated using the appropriate combination of lecture and laboratory guidelines.

**Independent study and undergraduate research experiences**

One credit is awarded for three hours of independent study work per week for fifteen weeks (45 hours). Likewise, one credit is awarded for three hours of research time per week for fifteen weeks (45 hours). Each of these is equivalent to fifteen 50-minutes lecture class sessions with two hours of outside work per session.

**Experiential learning**

Expectations regarding the definition of and the awarding of credit for experiential learning varies by discipline and program specific accrediting body. At ACPHS, one credit hour is awarded for a minimum 40 hours of supervised academic activity in a professional setting. Expectations regarding required preparation outside of the supervised time varies by experience.

**Online courses**

It is expected that the learning outcomes for online courses are consistent with those of their conventional counterparts. The college abides by the requirements of the NYS department of education that “time on task” (the total learning time spent by a student in a college course) be used in the granting of credit hours for online courses where one credit hour equates to 45 hours of time. Time on task approximates the amount of time a student doing satisfactory work would take to complete the work of the course and includes:

- Reading course presentations/ "lectures"
- Reading other materials
- Participation in online discussions
- Doing research
- Writing papers or other assignments
- Completing all other assignments (e.g. Projects)

**Documentation of course expectations**

The college uses a course approval process that, at a minimum, requires the approval of the department offering the course. Course approval requires the completion of a course proposal that documents the expected topic coverage and associated in-class schedule by week. It is the responsibility of the approving department to ensure the appropriateness of these schedules and consistency with the proposed credit hour assignment.

Expectations for independent study and research vary by student and experience. Specific requirements for each student are documented by faculty in the respective forms and approved by the department chair of the department granting the credit. These forms are submitted to and archived by the registrar’s office.

**Course scheduling**

The scheduling of courses is made by the respective department chairs and executed by the registrar. Both hold responsibility for ensuring that the expectations of this policy are met.

**Alternate schedules**

The awarding of credit for a course is not impacted by the calendar under which it is taught as long as the total hours remain unchanged. That is, a course carries the same credit hours whether offered under a regular semester schedule, during a summer session, or in an accelerated manner.

**Cancellation of classes**

When a faculty member needs to cancel class for reasons such as illness, jury duty, professional service obligations, or attendance at a professional conference, it is expected that the total instructional hours of the class be maintained by holding a make up class, providing a recorded lecture, assigning an appropriate activity, or other approach. If the college is closed, faculty are expected to make up the instructional hours through one of the means listed above.

**References**

Middle states commission of higher education credit hour policy https://msche.my.salesforce.com/sfc/p/#46000000zdjj/a/46000000xprz/9qoyhbwk.x.jtjsqsgv4dqtw83rvhz7rjbvzb5leulq

Gen-11-06 guidance to institutions and accrediting agencies regarding a credit hour as defined in the final regulations published on October 29, 2010 https://ifap.ed.gov/dpcletters/attachments/gen1106.pdf

New York state distance education program policies, determining time on task in online education http://www.nysed.gov/college-university-evaluation/distance-education-program-policies

Suny university-wide credit hour policy https://www.suny.edu/sunypp/documents.cfm?doc_id=168

# ACADEMIC STANDING

## Academic Standing

The academic standing of students is designated as one of the following at the end of each academic term: fall, spring, summer session I and summer session II.

## Good Academic Standing

Students who have successfully completed all coursework with grades, semester and cumulative GPAs that meet or exceed the minimum college-wide and programmatic academic standards, and/or are making appropriate progress on thesis or capstone work are designated as being in good academic standing.

***Note:*** *Good academic standing does not assure progression into the professional years of the College's programs. Students are not officially informed of this status unless they are being removed from academic probation imposed in the previous semester.*

## Grades and Grade Point Average (GPA)

- Faculty are responsible for assigning grades in each course. 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" procedure below.

- At the discretion of the instructor and department chair, a grade of "I" (Incomplete) may be assigned when a student does not complete the requirements of a course within the semester of enrollment due to extenuating circumstances.
    - Instructors may request that a grade of I be assigned to a student using the Incomplete Grade Request Form found on the Registrar's intranet site. Unless the faculty member submits a final grade, the Registrar's Office will change an incomplete grade to the grade indicated on the request form when the deadline established by the faculty (no longer than one semester) has passed.
    - An incomplete grade does not satisfy the prerequisite of another course.
    - Students cannot graduate from the college with an incomplete grade on their record.

- Some courses are graded on a pass/fail basis. Grades of "P" are not calculated into the GPA.

- Earned quality points for each course are calculated by multiplying the number of credits for that course by the GP equivalent. *For example, a student taking Physiology/Pathophysiology I (4 credit course) receiving a grade of B+ (GP=3.3) would earn 13.2 quality points (4 credits x 3.3 GP=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 the nearest tenth of a point (0.1). Semester, cumulative and professional GPAs are calculated by dividing the total quality points earned by the total credits.

| Numerical Grades, Letter Grades, and Grade Point Equivalents * | | |
|---|---|---|
| Numerical Grade | Letter Grade | GP Equivalent |
| > 97 | A+ | 4.0 |
| 93-96 | A | 4.0 |
| 90-92 | A- | 3.7 |
| 87-89 | B+ | 3.3 |
| 83-86 | B | 3.0 |
| 80-82 | B- | 2.7 |
| 77-79 | C+ | 2.3 |
| 73-76 | C | 2.0 |
| 70-72 | C- | 1.7 |
| 67-69 | D+ | 1.3 |
| 63-66 | D | 1.0 |
| 60-62 | D- | 0.7 |
| < 60 | F | 0.0 |

**** The above numerical equivalents are provided as a guideline to faculty and students. Please consult individual course syllabi for course grading and rounding policies.***

## Requirements for Graduation

Candidates for all degrees must have satisfied all of the academic requirements of the program and be approved for conferral of the degree by a majority vote of the faculty. Students must pay all College-related financial obligations and return all material belonging to the College in order to be eligible for graduation. The College reserves the right to change the requirements for graduation.

**Master of Science Programs: Requirements for Graduation**

Students in any MS program must earn a minimum cumulative GPA of 3.0 to be eligible for graduation.

**Doctor of Pharmacy Program: Requirements for Graduation**

Students in the PharmD program must earn a cumulative professional GPA of 2.5 or better at the end of P4 to be eligible for graduation.

# Graduation Academic Honors

**Undergraduates**
In recognition of distinguished academic achievement, the College awards graduation honors to undergraduate students based on the cumulative GPA calculated from didactic coursework taken at ACPHS at the time of graduation.
Summa Cum Laude 3.9 – 4.0
Magna Cum Laude 3.7 – 3.8
Cum Laude 3.5 – 3.6

**Doctor of Pharmacy**
In recognition of distinguished academic achievement, the College awards graduation honors to PharmD students based on the cumulative GPA calculated from required professional coursework and professional electives completed during the professional years of P1 to P3 at ACPHS.
Summa Cum Laude 3.9 – 4.0
Magna Cum Laude 3.7 – 3.8
Cum Laude 3.5 – 3.6

**Doctor of Pharmacy Program: Experiential Honors**
Experiential Education (EE) Honors is a designation awarded to students who have demonstrated excellence in the experiential IPPE and APPE course sequences. Experiential Education Honors will be awarded to up to 10% of the graduating class.

**Graduate Honors**:
ACPHS does not award academic Latin honors for master's students. The basic requirement for good academic standing for a Master's student is a 3.0 GPA. If we were to award academic honors at that level, the vast majority of our graduate students would be on the list diminishing the value of the awards.

## Academic Standing and Progression

***Good academic standing (GAS) does not ensure entry into the College's professional programs.***

| College-wide (Bachelor's) | PharmD | Master's |
|---|---|---|
| Must attain and maintain a semester and cumulative GPA of 2.0 in the first two years of the curriculum.<br>**Specific for Bachelor's in CLS:**<br>Attain and maintain the college standard of semester and cumulative GPA of 2.0 in the first two years of the curriculum.<br>Starting in year three (the first professional year), students are subject to both College-wide standards and the CLS specific standards below:<br><br>Maintain a semester and cumulative professional GPA of 3.0.<br>Professional courses are defined as required courses bearing a CLS prefix. The professional GPA is calculated based on the grades from all professional courses taken.<br>Professional courses with a grade below C (73%) must be repeated.<br>In order to begin clinical practicum rotations students must have:<br><br>Passed all required courses numbered 399 and lower.<br>Completed all professional courses numbered 399 and lower with a grade of C or better. All grades below C must be repeated.<br>Have a professional GPA of 3.0.<br>Clinical rotations are considered professional courses and must be completed with a C or better. Any rotation below C must be repeated.<br>One grade of F results in program probation; two grades of F may result in dismissal from the program.<br>*See Progression into the P1 year and Non-Progression below.* | **Professional courses** are defined as all required courses in the P1-P4 years of the Doctor of Pharmacy Program, including professional electives, regardless of whether taken during the P1–P4 years or earlier.<br>**Professional GPA** is determined using grades earned in all professional courses.<br>Professional courses with grades below C- must be repeated.<br>**Progression in Experiential Education:** Students must be in GAS to progress into their Community, Institutional, and Team Based Care IPPEs.<br>Students who are not in GAS will use the summer and ensuing months to repeat coursework to attain GAS and will be rescheduled for their rotations, as determined by Experiential Education.<br>Rescheduled IPPEs may result in a delay in graduation.<br>Students must successfully complete the entire pre-APPE curiculum, including IPPEs, and be in GAS to progress in to the APPEs.<br>*Note: Violations of the Conduct Code, Professionalism Code, and/or Academic Integrity may prevent students from progressing into and through the Experiential Education curriculum.* | Cumulative GPA of 3.0 or higher and be free of any probationary status;<br>**Required Courses:** Students must earn a grade of B or better in all required graduate courses;<br>**Elective Courses:** Students are permitted only one grade in the range of B- to C- in elective courses. If less than a C- is earned, the student must remediate the elective course or take a different elective;<br>Demonstrate satisfactory progress in thesis research, capstone or clinical practicum as documented by recommendations from the thesis/faculty advisor and the grades of related thesis courses to be considered in good academic standing.<br><br>All courses, whether accepted toward graduation credit or not, are recorded on a student's transcript and count in GPA calculations. |

## Progression into the P1 Year:

Students enrolled in the BSPK with early assurance pre-pharmacy program automatically progress into the P1 year of the PharmD program if the following conditions are met:

- Submit application via PharmCas;
- In good academic standing;
- Completion of the pre-pharmacy program with a cumulative overall GPA of 3.0 or higher;
- Completion of all pre-requisite courses in the pre-pharmacy curriculum plus meeting elective requirements.
- Students entering P1 require a minimum of 9 elective credits, at least 6 of which must be liberal arts credits. Liberal arts credit requirements may be met by courses in history, civilizations, fine arts, literature, philosophy, religious studies, ethics, foreign language, cultural diversity, performing arts or visual arts.
- No un-remediated course failures.
- Demonstrate proficiency in writing.
- Successful completion of an interview, to take place during the semester prior to progression. Only students who attain a GPA > 2.5 (after three semesters, or after the fall semester of pre-pharmacy year 2) will be invited for interview.
- Self-reporting of conduct or academic integrity issues and successful completion, at the student’s expense, of a criminal background check.

# ACADEMIC STANDING AND PROGRESSION

## Doctor of Pharmacy Non-Progression:

### Review of Non-Progressing Early Assurance Students by the Pharmacy Admissions Committee (PAC)

- The academic records of early assurance students not meeting the course or GPA requirements for automatic progression into the P1 year, outlined above, but who have met all of the other criteria are reviewed by the PAC in May for consideration to progress into the P1 year of the PharmD program. For consideration by the committee, students must have a minimum cumulative GPA of 2.5 or higher.

- The committee reviews applications for special progression consideration. The committee may recommend one or more of the following conditions for progressing into the P1 year:

1. Remediate one or more courses during the summer months prior to entering the P1 year.
2. Students may be required to earn minimum grades in remediated courses or to take courses at ACPHS when available.
3. Take a writing course, retake the writing evaluation or obtain ESL assistance prior to or during the P1 year.

- The committee makes a recommendation to the Dean of Pharmacy, who makes the final decision and informs the student of the progression decision. *Note that meeting the minimum requirements for this review does not guarantee progression into the P1 year.*

- Students in good academic standing at the College who do not progress into the P1 year by any of the mechanisms above may remain in the BSPK program or apply for transfer to another program at the College. *See Transfer to another Program below.*

# DOCTOR OF PHARMACY PROGRAM TECHNICAL STANDARDS

The following attributes represent the skills and abilities required for a graduate of the pharmacy program at ACPHS to function as a practicing pharmacist.1 As such, these skills are required for students matriculating in the Doctor of Pharmacy program at ACPHS. Students unable to meet these requirements with or without reasonable accommodations may not be admitted to the program or may be dismissed from the program.

## OBSERVATION (USE OF THE SENSE OF VISION)

The student must be able to:

- Observe demonstrations and experiments
- Accurately read information and instructions
- Observe a patient accurately at a distance and close-up
- Observation necessitates the functional use of the sense of vision and other sensory modalities. Acuity of these senses is important.

## COMMUNICATION (INCLUDES SPEAKING, READING, WRITING, AND COMPUTER LITERACY)

The student must be able to:

- Communicate effectively and sensitively with patients in the English language
- Communicate effectively and efficiently in oral and written forms with all members of the healthcare team.

## MOTOR SKILLS (PHYSICAL ABILITY AND COORDINATION)

The student must have:

- Sufficient motor function to execute movements required to provide care.
- Coordination of both gross and fine muscular movements, equilibrium, and functional use of the senses of touch and vision.

## INTELLECTUAL, CONCEPTUAL, INTEGRATIVE AND QUANTITATIVE ABILITIES (ABILITY TO PROBLEM-SOLVE)

The student must be able to:

- Measure, calculate, reason, analyze, and interpret data.
- Synthesize and apply complex information.
- Integrate and process information promptly and accurately.

## BEHAVIORAL AND SOCIAL ATTRIBUTES (EMOTIONAL STABILITY AND STAMINA)

The student must:

- Possess the emotional health required for full utilization of intellectual abilities.
- Tolerate physically, mentally, and emotionally taxing workloads and function effectively under stress.
- Possess compassion, integrity, interpersonal skills, and motivation to excel in the practice of pharmacy.

[1]Adapted from Berry TM et al. American Journal of Pharmaceutical Education 2011; 75 (3) Article 50.

# Academic Probation

Students whose academic performance falls below the college-wide or program standards at the end of an academic semester will be placed on College-wide academic probation or program academic probation, respectively.

- A student on academic probation must improve academically and address the conditions that resulted in probation.
- While on academic probation, a student may be ineligible to hold a class and student organization office, join a fraternity, participate in intercollegiate athletics or provide service on College committees.
- The summer semester can only be used to address course grades and cumulative GPA deficiencies, not the prior semester's GPA.
- In some cases, financial aid or work study employment may be jeopardized.

<table>
<tr><th>College-wide (Bachelor's)</th><th>PharmD (P1-P4)</th><th>Master's</th></tr>
<tr><td colspan="3">A student will be placed on academic probation if any of the following conditions exist within a semester:</td></tr>
<tr>
<td>A semester or cumulative GPA below 2.0;<br><br>Two or more grades below C-;<br><br>A single grade of F.<br><u>Specific for BSCLS:</u><br><br>If semester or cumulative professional GPA drops below 3.0.<br><br>Two program probations may result in dismissal from the program.</td>
<td>A cumulative professional GPA below the thresholds listed in the table below, by semester:
<table>
<tr><td>End of Fall P1</td><td>2.0</td><td>End of Spring P1</td><td>2.1</td></tr>
<tr><td>End of Fall P2</td><td>2.1</td><td>End of Spring P2</td><td>2.2</td></tr>
<tr><td>End of Fall P3</td><td>2.2</td><td>End of Spring P3</td><td>2.3</td></tr>
<tr><td>End of Fall P4</td><td>2.3</td><td>To Graduate Spring P4</td><td>2.5</td></tr>
</table>
Any grade point average (GPA) below 2.0 (semester, professional semester);<br><br>a single grade below C-.</td>
<td>Receives a grade less than a B in any required course or more than one grade of less than a C- in an elective course;<br><br>Unsatisfactory progress towards completion of thesis research or capstone project.<br><u>Specific for MSCLS* students:</u><br><br>If semester GPA falls below 3.0 and/or cumulative professional GPA below 3.0.<br>*Professional courses are defined as required courses bearing a CLS prefix. The professional GPA is calculated based on the grades from all professional courses taken.<br>See Probation process below.</td>
</tr>
<tr><td colspan="2"><u>Removal from Academic Probation for Bachelor's and PharmD Programs:</u><br>Academic probation will end when the student successfully addresses all of the conditions that placed the student on probation.</td><td></td></tr>
</table>

## Probation Process for Master's Students:

1. Recommendations for probation are made to the Program Director;
2. The Program Director forwards the recommendation to the Academic Standards Committee (ASC).
3. The ASC renders a final decision and consults with the Program Director as to how to proceed with the student's academic probation.
4. Students placed on academic probation by the ASC will be informed by the Registrar's Office via a letter from the Dean.

***Note:*** *A recommendation for academic probation due to unsatisfactory progress in thesis research or capstone project may be initiated by the student's faculty advisor if the advisor considers a student's performance to be unsatisfactory irrespective of a student's grade point average.*

Removal from Academic Probation for Master's Programs:
A graduate student placed on academic probation due to a semester GPA below 3.0 must restore their cumulative 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 receiving grades less than a B in a required course or more than one grade of less than a C- in an elective course must remediate the course in order to be removed from academic probation.
- Students placed on academic probation due to unsatisfactory progress towards completion of the degree may be restored to good academic standing following notification by the advisor or Program Director to the Dean that the student is making satisfactory progress.
- 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 may be dismissed from the program.
- Students removed from academic probation will be informed by the Program Director.

## Academic Dismissal

Students with significant or multiple academic deficiencies may be dismissed from an academic program (based on program-specific academic standards) or they may be dismissed from the College.

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

Students who have been dismissed from a program, but not the College, may consider transfer to another program at the College. *See Transfer to another Program below.* Students dismissed from the College can also seek re-admission to ACPHS as transfer students.

| **College-wide (Bachelor's)** | **PharmD (P1-P4)** | **Master's** |
|---|---|---|
| *Dismissal from the College if one of the following conditions exists:*<br><br>Two instances of probation (whether consecutive or non-consecutive);<br><br>A semester GPA below 1.6 | *Dismissal from the program for any of the following reasons below:*<br><br>Two instances of probation (whether consecutive or non-consecutive) resulting from didactic or experiential coursework in the Doctor of Pharmacy program;<br><br>A semester GPA below 1.6; Failure to successfully complete APPE Performance Improvement Plan | *Dismissal from a graduate program for any of the following reasons:*<br><br>Failure to correct deficiencies of academic probation in a timely manner (see above: "*Removal from Academic Probation*")<br><br>Two independent instances of being placed on academic probation.<br><br>Two failures of the thesis defense or two failures of the capstone project.<br><br>Receiving a grade of F in any required graduate course or grades of B- or below in two or more required courses.<br>Failure to meet Programmatic requirements in the time frame designation for program completion.<br>***Other requirements:***<br><br>Full-time graduate students must complete all program degree requirements in 3 years or less.<br><br>Part-time graduate students must complete all program degree requirements in 7 years or less.<br><br>Students dismissed from a graduate program will be informed by the Program Director and the decision will be communicated to the student's advisors, the Dean and the Registrar's office. |

# ACADEMIC APPEAL PROCESS

Students are permitted to appeal academic standing and progression decisions (except academic probation) by completing a form and supporting documentation. The process and forms can be found at: https://www.acphs.edu/academic-standing-progression-appeals-process-0

- The academic standards committee (ASC) is responsible for the oversight of academic standards and the academic standing of students for all programs – bachelor's (BS), PharmD, and graduate (MS) programs.
    - Students are required to maintain minimum course grades, semester, cumulative and professional GPAs as required by the college-wide and programmatic academic standards to be in good academic standing.

- The ASC is responsible for reviewing student academic records at the end of each semester and making the decision to place a student on probation or to dismiss the student from their respective program or the college if they fail to meet the respective academic standards. The ASC communicates decisions to the registrar in writing. The registrar then sends a letter to the student on the dean's behalf.
    - at the end of each semester, the registrar's office prepares student grade reports from the current semester and provides the reports to the ASC
    - Grade reports of all students on academic probation from the previous semesters are also provided to the ASC

- The ASC makes decisions on the academic standing of students in academic difficulty, i.e., those on probation who fail to meet academic standards, and on students eligible to be removed from probation. The registrar communicates this decision, along with any probation removal conditions, to the students on behalf of the dean.

- Students are permitted to appeal academic standing and progression decisions (except academic probation) by submitting a form and supporting documentation to the academic standards and progression committee at academicappeals@acphs.edu. The appeal letter should clearly describe the basis for the appeal and should include:

1. Explanation/justification surrounding the student's inability to meet the college-wide or program academic standards;

2. Appropriate documentation by a competent, qualified professional in the event extenuating life circumstances are identified;

3. The college reserves the right to require further evaluation and/or documentation.

4. Student success plan: plan for coping with unresolved issues and for remediating any academic deficiencies.

- Appeal forms and documentation must be received by the deadline for the appeal to be considered.

- While the appeal is being considered, a student's academic status does not change. If a student was dismissed, he or she remains dismissed.

- The academic standing and progression committee (ASPC) serves in the capacity of an advisory body for the deans for student appeals of academic dismissal (not probation). In such, the ASPC reviews all student appeals for dismissal, including all related documentation and supporting evidence, and for making recommendations to the deans to grant or deny the appeals.

- After reviewing the appeal form and related documentation along with input from the student's academic advisor, faculty advisor and program director and other pertinent student information including academic integrity, conduct and professionalism issues; the ASPC will make a recommendation to the Vice President of Academic Affairs (VPAA) and Deans to grant or deny the appeal.

- The VPAA in collaboration with both Deans reviews ASPC recommendations and collaboratively makes final decisions. In case of a disagreement, the final determination will be made by the VPAA.

- Students are notified of the decision by the Registrar with a letter that includes conditions of the appeal for the ensuing academic year, which must be accepted by the student in writing.

## Transfer to Another Program

Students wishing to transfer to another program at the College should:

1. Contact the program director of the program you are dismissed from, your faculty advisor, and your academic advisor (Triangle of Academic Success) to seek guidance regarding alternative programs;

2. Meet with the program director of the program you wish to transfer to discuss curricular options, review course credits, and plan your degree path;

3. Consult with Financial Aid to discuss potential financial aid implications of transferring to another program;

4. Once an appropriate plan is determined, complete the Internal Transfer into an ACPHS Program form on the Registrar's intranet page and submit to the Registrar with appropriate signatures.

### Re-Admission Policy

A student who wishes to return to the College after dismissal for poor academic performance may apply for admission as a transfer student. Courses taken at other institutions during the dismissal period will be reviewed for approval as transfer credits upon re-admission to the College.

### Re-Admission Policy Pharmacy Program:

Individuals who have been dismissed from the Pharmacy Program for academic reasons may reapply to the Pharmacy Program through PharmCAS (see http://www.pharmcas.org for details and application deadlines). A supplemental application for readmission will be sent to the applicant following receipt of the PharmCAS application. The same admission standards for the P1 applicants will apply. The Pharmacy Admissions Committee will make a determination regarding admission, including conditional acceptance, and work with the program director for class year placement for students dismissed from the program in the P2, P3 or P4 year. Contact the Admissions office for further information at admissions@acphs.edu.

See Academic Appeals Process and Action Timeline at https://www.acphs.edu/academic-appeals-process.

# Undergraduate Degree Program Directors

| Program | Program Director |
|---|---|
| Bachelor of Science in Biology | Kelly Hallstrom |
| Bachelor of Science in Biomedical Technology | Nicole Shakerley |
| Bachelor of Science in Clinical Laboratory Sciences | Michelle Parent |
| Bachelor of Science in Health Sciences | Nicole Shakerley |
| Bachelor of Science in Forensic Psychology | Robert Flint, Jr. |
| Bachelor of Science in Forensic Science | Sara Alvaro |
| Bachelor of Science in Microbiology | Anne McCabe |
| Bachelor of Science in Pharmaceutical Sciences | Lauren Purington |
| Bachelor of Science in Psychology | Robert Flint, Jr. |
| Bachelor of Science in Public Health | Allison Burton-Chase and Margaret Doll, Co-Program Directors |
| Bachelor of Science in Pharmaceutical Sciences (Pharmacy Skills Track) | Lauren Purington |
| Pre-Professional Pathways | Elizabeth Brookins |

# Graduate Degree Program Directors

| Program | Program Director |
|---|---|
| Master of Science in Biomanufacturing & Bioprocessing | Payel Datta |
| Master of Science in Biomedical Sciences | Elizabeth Brookins |
| Master of Science in Cytotechnology & Molecular Cytology | Jenna LeBlanc |
| Master of Science in Clinical Laboratory Sciences | Michelle Parent |
| Master of Science in Molecular Biosciences | Vir Singh |
| Master of Pharmaceutical Sciences | Manish Shah |

# Doctorate Degree Program Director

| Program | Program Director |
|---|---|
| Doctor of Pharmacy | Katie Cardone |

# BACHELOR OF SCIENCE IN BIOLOGY

| Term: Fall 1 | |
|---|---|
| Course Number & Title | Cr |
| BIO111: General Biology I | 4 |
| CHE111: General Chemistry I | 4 |
| COM115: Principles of Communications | 3 |
| HUM115: Voice and Identity | 3 |
| | |
| **Term credit total:** | **14** |

| Term: Spring 1 | |
|---|---|
| Course Number & Title | Cr |
| BIO121: General Biology II | 4 |
| CHE121: General Chemistry I | 4 |
| HUMXXX: Humanities Selective | 3 |
| MAT121: Calculus I | 4 |
| | |
| **Term credit total:** | **15** |

| Term: Fall 2 | |
|---|---|
| Course Number & Title | Cr |
| CHE211: Organic Chemistry I | 4 |
| PHY212: College Physics I | 4 |
| PSY101: General Psychology | 3 |
| HUMXXX: Humanities Selective | 3 |
| | |
| **Term credit total:** | **14** |

| Term: Spring 2 | |
|---|---|
| Course Number & Title | Cr |
| CHE221: Organic Chemistry II | 4 |
| PHY222: College Physics II | 4 |
| MAT145: Elementary Statistics | 3 |
| SOC101: Introduction to Sociology | 3 |
| Elective 1 | 3 |
| **Term credit total:** | **17** |

| Term: Fall 3 | |
|---|---|
| Course Number & Title | Cr |
| BIO210: Microbiology | 4 |
| BIO258: Genetics | 3 |
| BIOXXX: Principles of Ecology & Evolution | 3 |
| PSC311: Biochemistry | 3 |
| Elective 2 | 3 |
| | |
| **Term credit total:** | **16** |

| Term: Spring 3 | |
|---|---|
| Course Number & Title | Cr |
| BIO235: Cell Biology | 3 |
| BIO236: Cell Biology Lab | 1 |
| BIOXXX: Developmental Biology | 3 |
| PSC312: Molecular Biology | 3 |
| Elective 3 | 3 |
| Elective 4 | 3 |
| **Term credit total:** | **16** |

# BACHELOR OF SCIENCE IN BIOLOGY

| Term: Fall 4 | | | Term: Spring 4 | |
|---|---|---|---|---|
| Course Number & Title | Cr | | | Cr |
| BIO213: Anatomy and Physiology I | 3 | | BIO215: Anatomy and Physiology II | 3 |
| BIO214: Anatomy and Physiology I Lab | 1 | | BIO216: Anatomy and Physiology II Lab | 1 |
| PSC315: Immunology | 3 | | Biology Selective 2 | 3 |
| Biology Selective 1 | 3 | | Biology Selective 3 | 3 |
| Scientific Communication | 3 | | Elective 6 | 3 |
| Elective 5 | 3 | | | |
| **Term credit total:** | **16** | | **Term credit total:** | **13** |

BS Biology Program Requirements

| Number | Name | Credits | Status |
|---|---|---|---|
| | | | |
| **GENERAL EDUCATION (60 credits)** | | | |
| | | | |
| **Science and Math (39 credits)** | | | |
| BIO 111 | General Biology I | 4 | Existing |
| BIO 121 | General Biology II | 4 | Existing |
| CHE111 | General Chemistry I | 4 | Existing |
| CHE 121 | General Chemistry II | 4 | Existing |
| MAT 111 | Calculus I | 4 | Existing |
| MAT 145 | Elementary Statistics | 3 | Existing |
| CHE 211 | Organic Chemistry I | 4 | Existing |
| CHE 221 | Organic Chemistry II | 4 | Existing |
| PHY 212 | College Physics I | 4 | Existing |
| PHY 222 | College Physics II | 4 | Existing |
| | | | |
| **Humanities and Social Sciences (15 credits)** | | | |
| HUM 115 | Voice and Identity | 3 | Existing |
| HUM 1XX | Humanities Methods and Approaches Selective | 3 | Existing |
| HUM 2XX | Science and Health through the Humanities Lenses Selective | 3 | Existing |
| PSY 101 | General Psychology | 3 | Existing |
| SOC 101 | Introduction to Sociology | 3 | Existing |
| | | | |
| **Communication (6 credits)** | | | |
| COM115 | Principles of Communication | 3 | Existing |
| BIO 253 | Scientific Communication | 3 | Existing |
| | | | |

# BACHELOR OF SCIENCE IN BIOLOGY

| | | | |
|---|---|---|---|
| **FREE ELECTIVES (selected from courses classified as Liberal Arts and Sciences)** | | **18** | Existing |
| | | | |
| | | | |
| **Core Courses (34 credits)** | | | |
| BIO 258 | Genetics | 3 | Existing |
| BIO 210 | Microbiology | 4 | Existing |
| BIO 213 | Anatomy and Physiology I | 3 | Existing |
| BIO 214 | Anatomy and Physiology Lab | 1 | Existing |
| BIO 215 | Anatomy and Physiology II | 3 | Existing |
| BIO 216 | Anatomy and Physiology II Lab | 1 | Existing |
| BIO 235 | Cell Biology | 3 | Existing |
| BIO 236 | Cell Biology Lab | 1 | Existing |
| PSC 311 | Biochemistry | 3 | Existing |
| PSC 312 | Molecular Biology | 3 | Existing |
| PSC 315 | Immunology | 3 | Existing |
| BIO XXX | Principles of Ecology and Evolution | 3 | New |
| BIO XXX | Developmental Biology | 3 | New |
| | | | |
| | | | |
| **Biology Elective Courses (9 credits)** | | | |
| BIO 290 | Independent Study | 1-6 | Existing |
| BIO 345 | Journal Club | 1 | Existing |
| PBH 350 | Epidemiology | 3 | Existing |
| BIO 490 | Independent Study | 1-6 | Existing |
| BIO 625 | Advanced Molecular Biology | 3 | Existing |
| BIO 630 | Advanced Cell Biology | 3 | Existing |
| BIO 740 | Genetics and Molecular Basis of Disease | 3 | Existing |
| BIO XXX | Biology Internship | 1-6 | New |
| | | | |
| **TOTAL CREDITS** | General Education (60), Free Electives (18), Required Majors Courses (43) | **121** | |

# BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY

The Biomedical Technology program allows students to explore the many facets of human health and disease with an emphasis on the contribution of diagnostic laboratory medicine to medical practice. Students in the Biomedical Technology program have a variety of options based on their personal interests and career goals. The Program provides a strong foundation in basic and clinical sciences. Students are prepared to seek positions in the biomedical device industry, such as research, technical support, and sales, or to pursue admission to MS programs in Physician Assistant Studies. Incoming freshman students may apply for early assurance acceptance to the MS in Physician Assistant Studies at Albany Medical College. (This degree does not lead to certification or licensure. See the BS in Clinical Laboratory Sciences.)

The curriculum in Biomedical Technology is designed to ensure that all students are able to:

- Interpret Clinical Laboratory Testing
    - Evaluate the appropriateness and quality of laboratory specimens and handle them safely
    - Evaluate test results to ensure accuracy of analyses and correlate with medical history and diagnosis
- Promote Public Health
    - Promote public awareness of health and disease
- Demonstrate Professionalism
    - Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, other healthcare professionals, and the public
    - Establish and maintain continuing education for self and others to maintain lifelong learning and professional competence
    - Provide leadership in educating other healthcare professionals on issues related to the clinical laboratory
    - Read and evaluate published professional literature for its pertinence and reliability and explain the basic principles of the scientific method
- Understand Health Care Systems and the Role of the Medical Laboratory
    - Explain the role of the regulatory agencies that oversee the clinical laboratory and of the regulations pertinent to the laboratory and the healthcare organization in which the laboratory resides
    - Explain the organizational structure of healthcare organizations and the role of the clinical laboratory in the provision of patient care
- Practice the principles of diagnostic thought process and evidence-based medicine
    - Critically evaluate current publications on diagnostic processes, including laboratory results
    - Articulate the principles of evidence-based medicine in the diagnostic process

# BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY

**Required Courses:**

**Communications and Professional Development: 5 required credits**

ENG 101: First Year Writing (3)
PBH 102: First Year Experience (1)
BIO 345: Journal Club (1)

**Humanities, Culture, and Health: 18 required credits**

HUM 115: Voice and Identity (3)
ETH 310: Bioethics (3)
PSY 101: General Psychology (3)
Social Science Elective (3) – Any SOC course will satisfy this requirement

| ***Humanities Methods and Approaches Selective** | ****Science and Health Through Humanities Lenses Selective** |
|---|---|
| HIS140 Early American History (3) | HIS 235 Plagues in U.S. History (3) |
| HIS141 Modern American History (3) | HUM 220 Medical Humanities (3) |
| LIT 130 Creative Writing (3) | PHI 350 Nature and Wellness |
| LIT 135 The Short Story (3) | ENG 300 Breast Cancer Discourse |
| LIT 175 African Literature, Film, and Music (3) | HIS330 History of Public Health and Medicine |
| **Selective Choices Subject to Change based on Course Offerings** | |

**Basic Sciences: 42 required credits**

BIO 111 and 121: General Biology I and II (4, 4)
BIO 210: General Microbiology (4)
BIO 213 and BIO 214: Anatomy and Physiology I and Lab (3, 1)
BIO 215 and BIO 216: Anatomy and Physiology II and Lab (3, 1)
BIO 235: Cell Biology (3)
BIO 236: Cell Biology Laboratory (1)
CHE 111 and 121: General Chemistry I and II (4, 4)
CHE 221: Organic Chemistry I (4)
MAT 145: Elementary Statistics (3)
PSC 311: Biochemistry I (3)

**Biomedical Sciences: 10 required credits**

BHS 201 Medical Terminology (3)
BHS 345 and BHS 346 Molecular Diagnostics and Lab (3, 1)
BHS 340 Genetics and Molecular Basis of Disease (3)

**Clinical Sciences: 25 required credits**

CLS 327 and 329: Clinical Microbiology I and II (3, 3)
CLS 328 and 330: Clinical Microbiology I and II Lab (1, 1)
CLS 317: Clinical Hematology (3)
CLS 318: Clinical Hematology Lab (1)
CLS 307: Urinalysis and Body Fluids (1)
CLS 308: Urinalysis and Body Fluids Lab (1)
CLS 337: Clinical Immunology (3)
CLS 339: Immunohematology (3)
CLS 340: Immunohematology Lab (1)
CLS 346: Clinical Chemistry (3)
CLS 347: Clinical Chemistry Lab (1)

**Electives: 24 elective credits**

Directed Electives (18)
Free electives (6)

**Total Credits: 124 credits**

# BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY

**BHS 610 G** Cellular Pathophysiology/Histology I (3)
**BHS 620 G** Cellular Pathophysiology/Histology II (3)

**BIO 240** Virology (3)
**BIO 340** Microbial Genetics (3)
**BIO 360** Industrial Microbiology and Bioprocessing (3)
**BIO 365** Medical Mycology and Parasitology (3)
**BIO 370** Microbial Physiology (3)
**BIO 410** Pharmaceutical Microbiology (3)
**BIO 615G** Public Health Microbiology (3)

**CHE 222** Organic Chemistry II (4)

**COM 120** Introduction to Public Speaking (3)
**COM 320** Patient-Provider Communication (3)
**COM 330** Intercultural Communication in Healthcare (3)

**ECN 101** Introduction to Economics (3)
**ECN 317** Health Economics (3)

**ETH 315** Health, Disease, and Authority in Medicine (3)

**HIS 330** History of Public Health and Medicine (3)

**HUM 220** Medical Humanities (3)

**MAT 121** Calculus (4)

**PAD 451** US and Global Healthcare Systems (3)

**PBH 120** Intro to Public Health (3)
**PBH 245** Intro to Health Systems (3)
**PBH 305** Vaccines in Public Health (3)
**PBH 310** Medical Anthropology (3)
**PBH 325** Human Trafficking (3)
**PBH 335** Determinants of Health (3)
**PBH 350** Epidemiology (3)

**PHY 211/212** College Physics I/II (4, 4)

**PSC 215** Pills, Potions, and Poisons: A Pharmacology Primer (3)
**PSC 321** Pathophysiology I (4)
**PSC 322** Pathophysiology II (4)
**PSC 369** Molecular Foundation of Drug Action (3)
**PSC 371** Pharmacology I (3)
**PSC 372** Pharmacology II (3)

**PSY 250** Developmental Psychology: Childhood (3)
**PSY 252** Developmental Psychology: Adolescence (3)
**PSY 292** Motivation (3)
**PSY 310** Social Psychology (3)
**PSY 320** Biopsychology (3)
**PSY 345** Psychopharmacology (3)
**PSY 352** Health Psychology (3)
**PSY 363** Abnormal Psychology (3)
**PSY 365** Intro to Psychotherapy (3)
**PSY 440** Death and Dying (3)

**SOC 325** Medical Sociology (3)
**SOC 335** Global Health (3)
**SOC 420** Health and Social Policy (3)

# BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY

| Year 1 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | CHE 121 | General Chemistry II | 4 |
| ENG 101 | First Year Writing | 3 | MAT145 | Elementary Statistics | 3 |
| HUM 115 | Voice and Identity | 3 | BHS 201 | Medical Terminology | 3 |
| PBH 102 | First Year Experience | 1 | HUM XXX | Humanities Selective* | 3 |
| | **Total** | **15** | | **Total** | **17** |

| Year 2 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| CHE 211 | Organic Chemistry I | 4 | BIO 235/236 | Cell Biology with lab | 4 |
| BIO 210 | General Microbiology | 4 | BIO 215 | Anatomy & Physiology II Lecture | 3 |
| BIO 213 | Anatomy & Physiology I Lecture | 3 | BIO 216 | Anatomy & Physiology II Lab | 1 |
| BIO 214 | Anatomy & Physiology I Lab | 1 | SOC 101 | Directed Elective-SOC Intro to Soc | 3 |
| PSY101 | General Psychology | 3 | HUM XXX | Humanities Selective** - | 3 |
| | | | | Free Elective 1 | 3 |
| | **Total** | **15** | | **Total** | **17** |

| Year 3 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| CLS 327/328 | Clinical Microbiology I | 4 | CLS 329/330 | Clinical Microbiology II | 4 |
| CLS 317/318 | Clinical Hematology | 4 | CLS 346/347 | Clinical Chemistry | 4 |
| CLS 337 | Clinical Immunology | 3 | CLS 339/340 | Immunohematology | 4 |
| PSC 311 | Biochemistry | 3 | CLS 307/308 | Urinalysis and Body Fluids | 2 |
| ETH 310 | Bioethics | 3 | | Free Elective 2 | 3 |
| | **Total** | **17** | | | **17** |

| Year 4 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BHS 345 | Molecular Diagnostics | 3 | BHS 740 | Genetics and Molecular Basis of Disease | 3 |
| BHS 346 | Molecular Diagnostics Lab | 1 | | Directed Elective 4 – | 3 |
| | Directed Elective 1 – | 3 | | Directed Elective 5 - – | 3 |
| | Directed Elective 2 – | 3 | | Directed Elective 6 – | 3 |
| | Directed Elective 3- | 3 | BIO345 | Journal Club (Can be taken in Fall or Spring) | 1 |
| | **Total** | **13** | | **Total** | **13** |

**TOTAL CREDITS = 124**

## BS in Biomedical Technology/MS Cytotechnology and Molecular Cytology:

Upon completion of the third year of core courses, students may apply to enter the BS Biotechnology/MS Cytotechnology and Molecular Cytology program. Students will continue their education with training in microscopic examinations of human cell samples to identify inflammatory or cancerous changes in cell morphology. The Cytotechnology and Molecular Cytology program is the largest in the country and the only academic-based program in New York State. Graduates are eligible for national accreditation and licensure in New York State. (For course information, see the MS in Cytotechnology and Molecular Cytology program.)

## BS in Biomedical Technology/MS Clinical Laboratory Sciences:

Students electing to pursue the combined BS in Biomedical Technology and the MS in Clinical Laboratory Sciences will complete the first two years of the Biomedical Technology program and use the third year of the curriculum to complete the requirements for admission into the MS program and to take additional coursework in upper-level sciences, public health or other health-related courses that support entrance into the MS program. (For course information, see the MS in Clinical Laboratory Sciences Program.)

# BACHELOR OF SCIENCE IN CLINICAL LABORATORY SCIENCES

**The Clinical Laboratory Sciences curriculum is designed to ensure that all students are able to:**

*I. Perform Clinical Laboratory Testing*

A. Evaluate the appropriateness and quality of laboratory specimens.

B. Accurately and efficiently perform analytic analyses in all areas of the clinical laboratory to include: Clinical chemistry, hematology, hemostasis, immunohematology, clinical microbiology, parasitology, molecular diagnostics, laboratory management, 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 to advise, if requested, on appropriate follow-up testing.

*II. Participate In the Daily Management of the Clinical Laboratory*

A. Apply 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. Explain the principles of human resource management.

*III. Promote Public Health*

A. Promote public awareness of health and disease

B. Recognize the role of the laboratory in disaster management.

*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 healthcare professionals on issues related to the clinical laboratory.

D. Apply principles of educational methodology to training for laboratory professionals.

E. Read and evaluate published professional literature for its pertinence and reliability and explain the basic principles of the scientific method.

*V. Understand Healthcare System and the Role of the Medical Laboratory.*

A. Explain the role of the regulatory agencies that oversee the clinical laboratory and of the regulations pertinent to the laboratory and the healthcare organization in which the laboratory resides.

B. Explain the organizational structure of healthcare organizations and the role of the clinical laboratory in the provision of patient care.

# BS IN CLINICAL LABORATORY SCIENCES REQUIRED COURSES

**Communications and Humanities: 22 required credits**
COM 115: Principles of Communication or ENG 101 First Year Writing (3)
HUM 115 Voice and Identity (3)
PBH 102 First Year Seminar (1)
PSYC 101 Introduction to Psychology (3)
ETH 310 Ethics (3)
Humanities Methods and Approaches Selective (3)
Science and Health Through Humanities Lenses Selective (3)
Social Science Elective (3) – Any SOC course will satisfy this requirement

| ***Humanities Methods and Approaches Selective** | ****Science and Health Through Humanities Lenses Selective** |
|---|---|
| HIS140 Early American History (3) | HIS 235 Plagues in U.S. History (3) |
| HIS141 Modern American History (3) | HUM 220 Medical Humanities (3) |
| LIT 130 Creative Writing (3) | PHI 350 Nature and Wellness |
| LIT 135 The Short Story (3) | ENG 300 Breast Cancer Discourse |
| LIT 175 African Literature, Film, and Music (3) | HIS330 History of Public Health and Medicine |
| **Selective Choices Subject to Change based on Course Offerings** | |

**Basic Sciences: 42 required credits**
BIO 111 and 121: General Biology I and II (4, 4)
BIO 210: General Microbiology (4)
BIO 213 and BIO 214: Anatomy and Physiology I and Lab (3, 1)
BIO 215 and BIO 216: Anatomy and Physiology II and Lab (3, 1)
BIO 235: Cell Biology (3)
BIO 236: Cell Biology Laboratory (1)
CHE 111 and 121: General Chemistry I and II (4, 4)
CHE 221: Organic Chemistry I (4)
MAT 145: Elementary Statistics (3)
PSC 311: Biochemistry I (3)

**Biomedical Sciences: 10 required credits**
BHS 201 Medical Terminology (3)
BHS 345 and BHS 346 Molecular Diagnostics and Lab (3, 1)
BHS 340 Genetics and Molecular Basis of Disease (3)

# BS IN CLINICAL LABORATORY SCIENCES REQUIRED COURSES

**Clinical Sciences: 49 required credits**

CLS 327 and 329: Clinical Microbiology I and II (3, 3)
CLS 328 and 330: Clinical Microbiology I and II Lab (1, 1)
CLS 317: Clinical Hematology & Hemostasis (3)
CLS 318: Clinical Hematology & Hemostasis Lab (1)
CLS 307: Urinalysis and Body Fluids (1)
CLS 308: Urinalysis and Body Fluids Lab (1)
CLS 337: Clinical Immunology (3)
CLS 339: Immunohematology (3)
CLS 340: Immunohematology Lab (1)
CLS 346: Clinical Chemistry (3)
CLS 347: Clinical Chemistry Lab (1)
CLS 400: Principles of Clinical Laboratory Management (3)
CLS 401 and 402: Clinical Practicum I and II (8, 8)
CLS 403: Senior CLS Seminar (2)
CLS 760: Clinical Correlations (3)

# BACHELOR OF SCIENCE IN CLINICAL LABORATORY SCIENCES

| Course # | Course Name | Credit | Course # | Course Name | Credit |
|---|---|---|---|---|---|
| **BIO 111** | General Biology I | 4 | **BHS201** | Medical Terminology | 3 |
| **CHE 111** | General Chemistry I | 4 | **BIO 121** | General Biology II | 4 |
| **COM115** | Principles of Communication | 3 | **CHE 121** | General Chemistry II | 4 |
| **HUM115** | Voice and Identity | 3 | **MAT145** | Elementary Statistics | 3 |
| **PBH103** | First Year Seminar | 1 | | Humanities Methods and Approaches Selective* | 3 |
| | **TOTAL CREDITS** | 15 | | **TOTAL CREDITS** | 17 |

| Course # | Course Name | Credit | Course # | Course Name | Credit |
|---|---|---|---|---|---|
| **CHE221** | Organic Chemistry I | 4 | **BIO 235/236** | Cell Biology with lab | 4 |
| **BIO210** | General Microbiology | 4 | **BIO 215** | Anatomy & Physiology II Lecture | 3 |
| **BIO 213** | Anatomy & Physiology I Lecture | 3 | **BIO 216** | Anatomy & Physiology II Lab | 1 |
| **BIO 214** | Anatomy & Physiology I Lab | 1 | | Directed Elective-SOC | 3 |
| **PSYC101** | Intro to Psychology | 3 | | Science and Health Through Humanities Lenses Selective** | 3 |
| | | | | | |
| | **TOTAL CREDITS** | 15 | | **TOTAL CREDITS** | 14 |

| Course # | Course Name | Credit | Course # | Course Name | Credit |
|---|---|---|---|---|---|
| **CLS327/328** | Clinical Microbiology I | 4 | **CLS329/330** | Clinical Microbiology II | 4 |
| **CLS317/318** | Clinical Hematology & Hemostasis | 4 | **CLS346/347** | Clinical Chemistry | 4 |
| **CLS337** | Clinical Immunology | 3 | **CLS339/340** | Immunohematology | 4 |
| **PSC311** | Biochemistry | 3 | **CLS307/308** | Urinalysis and Body Fluids | 2 |
| **ETH310** | Bioethics | 3 | | | |
| | **TOTAL CREDITS** | 17 | | **TOTAL CREDITS** | 14 |

| Course # | Course Name | Credit | Course # | Course Name | Credit |
|---|---|---|---|---|---|
| **CLS401** | Clinical Practicum I | 8 | **CLS402** | Clinical Practicum II | 8 |
| **BHS345/346** | Molecular Diagnostics w/lab | 4 | **CLS410** | Clinical Correlations | 3 |
| **CLS400** | Principles of Clinical Laboratory Management | 3 | **BHS340** | Genetics and Molecular Basis of Disease | 3 |
| | | | **CLS403** | Senior CLS Seminar | 2 |
| | **TOTAL CREDITS** | 15 | | **TOTAL CREDITS** | 16 |

**TOTAL DEGREE CREDIT HOURS = 123**

## MASTER OF SCIENCE IN CLINICAL LABORATORY SCIENCES

**Required Courses:**

**Clinical Sciences: 51 required credits**
BHS 745 Molecular Diagnostics Lecture and Laboratory (4)
BHS 740 Genetics and the Molecular Basis of Disease (3)
CLS 610 and 620: Clinical Microbiology I and II Lecture and Laboratory (4, 4)
CLS 650: Clinical Hematology & Hemostasis Lecture and Laboratory (4)
CLS 655: Urinalysis and Body Fluids Lecture and Laboratory (2)
CLS 630: Clinical Immunology (3)
CLS 660: Immunohematology Lecture and Laboratory (4)
CLS 640: Clinical Chemistry Lecture and Laboratory (4)
CLS 770 and 780: Clinical Practicum I and II (8, 8)
CLS 760: Clinical Correlations (3)

**Additional Required Courses: 9 required credits**
BHS 730 Principles of Clinical Laboratory Management (3)
BHS 790 CLS Capstone (3)
ETH 610 Ethics in Research (1)
PSC 672 Experimental Design (2)

## MASTER OF SCIENCE IN CLINICAL LABORATORY SCIENCES

| Course # | Course Name | Credit | Course # | Course Name | Credit |
|---|---|---|---|---|---|
| **CLS610** | Clinical Microbiology I | 4 | **CLS620** | Clinical Microbiology II | 4 |
| **CLS650** | Clinical Hematology and Hemostasis | 4 | **CLS640** | Clinical Chemistry | 4 |
| **CLS630** | Clinical Immunology | 3 | **CLS660** | Immunohematology | 4 |
| **PSC672** | Experimental Design and Data Analysis | 2 | **CLS655** | Urinalysis and Body Fluids | 2 |
| | | | **ETH610** | Ethics in Research | 1 |
| | **TOTAL CREDITS** | 13 | | **TOTAL CREDITS** | 15 |

| Course # | Course Name | Credit | Course # | Course Name | Credit |
|---|---|---|---|---|---|
| **CLS770** | Clinical Practicum I | 8 | **CLS780** | Clinical Practicum II | 8 |
| **BHS745** | Molecular Diagnostics w/lab | 4 | **CLS760** | Clinical Correlations | 3 |
| **BHS730** | Principles of Clinical Laboratory Management | 3 | **BHS740** | Genetics and Molecular Basis of Disease | 3 |
| | | | **BHS790** | Capstone | 3 |
| | **TOTAL CREDITS** | 15 | | **TOTAL CREDITS** | 17 |

**CREDITS = 60**

## BS IN BIOMEDICAL TECHNOLOGY/MS CLINICAL LABORATORY SCIENCES

Students electing to pursue the combined BS in Biomedical Technology and the MS in Clinical Laboratory Sciences will complete the first two years of the Biomedical Technology program and use the third year of the curriculum to complete the requirements for admission into the MS program and to take additional coursework in upper-level sciences, public health or other health-related courses that support entrance into the MS program. Required MS-CLS courses are found above and are identical to the MS-CLS grid. For additional information, please review the BS Biomedical Technology program to view undergraduate courses.

# BACHELOR OF SCIENCE IN FORENSIC PSYCHOLOGY

**Program Purpose**

The Bachelor of Science degree in Forensic Psychology at ACPHS will offer students the opportunity to develop extensive knowledge of the discipline of forensic psychology as a science including its modes of inquiry and major schools of thought. Forensic Psychologists apply their psychological expertise to the legal and criminal justice fields. The field of forensic psychology is immense, ranging from assessment, diagnosis, and treatment of criminal and civil forensic populations, courtroom process, and organization analysis to policy studies. If the student is appropriately prepared, they can skillfully work among those in the psychotherapeutic management and advocacy communities. The program will prepare students to pursue graduate study in a variety of fields such as psychology, criminal justice, and law. The major will also prepare students to enter careers in healthcare, human services, business, and industry.

**Program Objectives**

The Forensic Psychology (BS) major has been developed with guidance from the five learning objectives recommended for undergraduate Psychology programs by the American Psychological Association. These objectives include Knowledge Base in Forensic Psychology, Scientific Inquiry and Critical Thinking, Ethical and Social Responsibility in a Diverse World, Communication, and Professional Development. Objectives specific to our program are:

1. Program graduates will demonstrate a working knowledge of the traditional and emerging disciplines of psychology and related fields.
2. Graduates will be able to obtain, interpret, and apply information regarding psychology-related issues from scientific literature. They will integrate and apply knowledge to solve complex scientific problems and effectively communicate scientific and healthcare information with diverse audiences using textual, oral, visual, and digital media.
3. Graduates will demonstrate intra- and interpersonal skills required of practicing psychology, legal, and criminal justice
4. professionals.

# Bachelor of Forensic Psychology Sample Schedule

| Year 1 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| HUM 115 | Voice and Identity | 3 | | HUM XXX | Humanities Selective | 3 |
| COM 115 | Principles of Communication | 3 | | CJS 112 | The Court Systems | 3 |
| FPY 262 | Forensic Psychology | 3 | | PBH 210 | Intro to Data | 3 |
| PSY 101 | General Psychology | 3 | | CJS 111 | Criminal Behavior | 3 |
| CJS 110 | Intro to Criminal Justice | 3 | | | Elective | 3 |
| | **Total** | **15** | | | **Total** | **15** |

| Year 2 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| PSY 295 | Research Methods 1 | 4 | | BIO 102 | General Biology II | 4 |
| PSY 310 | Social Psychology | 3 | | PSY 299 | Research Methods 2 | 4 |
| | CJS Selective | 3 | | HUM XXX | Humanities Selective | 3 |
| | Elective | 3 | | | Elective | 3 |
| | Elective | 3 | | | | |
| | **Total** | **16** | | | **Total** | **14** |

| Year 3 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| | CJS Selective | 3 | | FPY 300 | Forensic Mental Health Law | 3 |
| PSY 363 | Psychotherapy | 3 | | FPY 320 | Forensic Neuroscience | 4 |
| | PSY Selective | 3 | | PSY 410 | Psychometrics | 3 |
| | Elective | 3 | | | CJS Selective | 3 |
| | Elective | 3 | | | Elective | 3 |
| | | | | | | |
| | **Total** | **15** | | | **Total** | **16** |

# Bachelor of Forensic Psychology Sample Schedule

| Year 4 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| FPY 400 | Advanced Forensic Psychology | 3 | | FPY 325 | Child & Adolescent Forensic Psychology | 3 |
| CJS 352 | CJS Selective | 3 | | | CJS Selective | 3 |
| FPY 498 | Senior Seminar: Research in Forensic Psychology | 4 | | | PSY Selective | 3 |
| | PSY Selective | 3 | | | PSY Selective | 3 |
| | Elective | 3 | | | Elective | 3 |
| | **Total** | **16** | | | **Total** | **15** |

## BACHELOR OF SCIENCE IN FORENSIC SCIENCE

| Number | Name | Credits |
|---|---|---|
| | | |
| **GENERAL EDUCATION 54 credits** | | |
| | | |
| **Science and Math (39 credits)** | | |
| BIO 111 | General Biology I | 4 |
| BIO 121 | General Biology II | 4 |
| CHE111 | General Chemistry I | 4 |
| CHE 121 | General Chemistry II | 4 |
| MAT 111 | Calculus I | 4 |
| MAT 145 | Elementary Statistics | 3 |
| CHE 211 | Organic Chemistry I | 4 |
| CHE 221 | Organic Chemistry II | 4 |
| PHY 212 | College Physics I | 4 |
| PHY 222 | College Physics II | 4 |
| | | |
| **Humanities and Social Sciences (12 credits)** | | |
| HUM 115 | Voice and Identity | 3 |
| HUM 1XX | Humanities Methods and Approaches Selective | 3 |
| HUM 2XX | Science and Health through the Humanities Lenses Selective | 3 |
| PSY 101 | General Psychology | 3 |
| | | |
| **Communication (3 credits)** | | |
| COM115 | Principles of Communication | 3 |
| | | |
| **FREE ELECTIVES** (selected from courses classified as Liberal Arts and Sciences) = **18 credits** | | |

## BACHELOR OF SCIENCE IN FORENSIC SCIENCE

| MAJOR COURSES = 50 credits | | |
|---|---|---|
| | | |
| **Core Courses (41 credits)** | | |
| FSC 190 | Introduction to Forensic Science | 3 |
| FSC 370 | Topics in Forensics Science | 3 |
| FSC 375 | Forensic Assays | 4 |
| CJS 112 | The Court Systems | 3 |
| CJS 252 | Introduction to Evidence | 3 |
| CJS 352 | Scientific & Expert Opinion Evidence | 3 |
| BHS 345 | Molecular Diagnostics | 3 |
| BHS 346 | Molecular Diagnostics Lab | 1 |
| CHE XXX | Quantitative Analysis | 3 |
| CHE XXX | Quantitative Analysis Lab | 1 |
| CHE XXX | Instrumental Analysis | 3 |
| CHE XXX | Instrumental Analysis Lab | 1 |
| BIO 258 | Genetics | 3 |
| BIO 235 | Cell Biology | 3 |
| BIO 236 | Cell Biology Lab | 1 |
| PSC 311 | Biochemistry | 3 |
| | | |
| **Forensic Science Elective Courses (9 credits, 3 credits each from FPY, BIO/PSC, and CJS)** | | |
| FPY 262 | Forensic Psychology | 3 |
| FPY 300 | Forensic Mental Health Law | 3 |
| FPY 320 | Forensic Neuroscience | 4 |
| BIO 740 | Genetics and Molecular Basis of Dis. | 3 |
| BIO 210 | Microbiology | 4 |
| BIO 213 | Anatomy and Physiology I | 3 |
| BIO 214 | Anatomy and Physiology I Lab | 1 |
| BIO 215 | Anatomy and Physiology II | 3 |
| BIO 216 | Anatomy and Physiology II Lab | 1 |
| PSC 361 | Pharmaceutical Analytical Tech I | 3 |
| PSC 362 | Pharmaceutical Analytical Tech II | 3 |
| LAW 141 | Introduction to Law | 3 |
| CJS 110 | Intro to Criminal Justice | 3 |
| CJS 244 | Criminal Profiling | 3 |
| CJS 337 | White Collar Crime | 3 |
| CLS 111 | Criminal Behavior | 3 |
| CLS 310 | Ethics in Criminal Justice | 3 |
| CJS 250 | Law and Theory of Investigation | 3 |
| FSC 491 | Forensic Science Internship | 1-6 |
| | | |
| **TOTAL CREDITS General Education (54), Free Electives (18), Major Courses (50) = 122 Credits** | | |

# BACHELOR OF SCIENCE IN FORENSIC SCIENCE SAMPLE SCHEDULE

| **Year 1** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO111 | General Biology I | 4 | | BIO121 | General Biology II | 4 |
| CHE111 | General Chemistry I | 4 | | CHE121 | General Chemistry II | 4 |
| HUM115 | Voice and Identity | 3 | | HUMXXX | Humanities Selective | 3 |
| FSC110 | Intro to Forensic Science | 3 | | MAT121 | Calculus | 4 |
| | | | | CJS112 | The Court System | 3 |
| | **Total** | 14 | | | **Total** | 18 |

| **Year 2** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE211 | Organic Chemistry I | 4 | | CHE 221 | Organic Chemistry II | 4 |
| PHY212 | College Physics I | 4 | | PHY 222 | College Physics II | 4 |
| HUMXXX | Humanities Selective | 3 | | MAT 145 | Elementary Statistics | 3 |
| CJS252<br>CJS352 | Introduction to Evidence or<br>Scientific & Expert Opinion Evid. | 3 | | COM 115 | Principles of Communication | 3 |
| | Elective 1 | 3 | | | | |
| | | | | | | |
| | **Total** | 17 | | | **Total** | 14 |

| **Year 3** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE203 | Quantitative Analysis | 3 | | CHE301 | Instrumental Analysis | 3 |
| CHE204 | Quantitative Analysis Lab | 1 | | CHE302 | Instrumental Analysis Lab | 1 |
| PSC311 | Biochemistry | 3 | | BIO235 | Cell Biology | 3 |
| BIO258 | Genetics | 3 | | BIO236 | Cell Biology Lab | 1 |
| PSY101 | General Psychology | 3 | | | FSC Selective | 3 |
| | Elective 2 | 3 | | | Elective 3 | 3 |
| | **Total** | 16 | | | **Total** | 14 |

| **Year 4** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BHS345 | Molecular Diagnostics | 3 | | FSC375 | Forensic Assays | 4 (SA) |
| BHS346 | Molecular Diagnostics Lab | 1 | | | FSC Selective | 3 |
| CJS252<br>CJS352 | Introduction to Evidence or<br>Scientific & Expert Opinion Evid. | 3 | | | Elective 5 | 3 |
| FSC370 | Cont. and Descriptive Topics | 3 | | | Elective 6 | 3 |
| | FSC Selective | 3 | | | | |
| | Elective 4 | 3 | | | | |
| | **Total** | 16 | | | **Total** | 13 |
| | | | | | | |
| **Totals** | | | | | | **122** |

Forensic Science Electives (9 credits) requires 3 credits chosen from each of FPY, BIO/PSC, and CJS.

# BACHELOR OF SCIENCE IN HEALTH SCIENCES

The B.S. Health Sciences program at Albany College of Pharmacy and Health Sciences is specifically designed to foster student growth as a future healthcare professionals. The 4-year (121 credits) curriculum is designed to provide students with a solid academic background in the basic, social, and health sciences. Upon completion of the program, students will be prepared for entry-level jobs in healthcare (e.g., health education specialists, patient care advocates, pharmacy sales representative) or to continue their education in graduate programs, including Physician's Assistant, Physical Therapy, Occupational Therapy, Athletic Training, Clinical Laboratory Science, Nursing, Dentistry, Optometry, or Chiropractic Medicine. Students would also be prepared for entry into the college's joint degree programs in Cytotechnology and Molecular Cytology or Clinical Laboratory Sciences.

Each student's curriculum is individually customized to match their desired professional outcomes. We have infused our health sciences program with increased flexibility to support paths to a variety of health professions with various requirements. The Health Sciences program also offers professional development courses to help students achieve their goals. An Introduction to Health Professions in the first year will help students develop a roadmap toward professions that they are interested in. As students approach graduation, our Preparation for Health Professions course will help them build a strong portfolio to present themselves to future employers or graduate health professions schools.

Graduates completing this program will be able to:

- Demonstrate a working knowledge of the traditional and emerging disciplines of health sciences.
- Obtain, interpret, and apply information about health-related issues from the scientific literature.
- Integrate and apply knowledge to solve complex health science problems.
- Effectively communicate scientific and healthcare information with diverse audiences, using textual, oral, visual, and digital media
- Demonstrate intra- and interpersonal skills required of practicing healthcare professionals including but not limited to: empathy, communication skills, professionalism, creative thinking, leadership, and teamwork.

# BS HEALTH SCIENCES REQUIRED COURSES

All students will complete the following core curriculum:

### Professional Development: 4 required credits
PBH 102 First Year Experience (1)
PPP 111 Introduction to Health Sciences (1)
PPP 380 Preparation for Health Professions (2)

### Natural Sciences: 37 required credits
BHS 201 Medical Terminology (3)
BIO 111 and BIO 121: General Biology I and II (4, 4)
BIO 210 Microbiology (4)
BIO 213/214 Anatomy and Physiology I (4)
BIO 215/216 Anatomy and Physiology II (4)
BIO 225 Genetics (3)
BIO 235 Cell Biology (3)
CHE 111 and CHE 121: General Chemistry I and II (4, 4)

### Mathematics: 3 required credits
MAT 145 Elementary Statistics (3) or PBH 230 Statistics for Public Health (3)

### Humanities: 9 required credits
HUM 115 Voice and Identity (3)
HUM 1XX or 2XX Humanities Methods and Approaches Selective (3)
HUM 2XX Science and Health through the Humanities Lenses Selective (3)

### Communication: 6 required credits
COM115 Principles of Communication (3)
One of: COM250 Persuasion (3) or COM315 Health Teamwork (3) or COM320 Patient-Provider Communication (3) or COM330 Intercultural Communication in Healthcare (3)

### Behavioral Sciences and Public Health: 18 required credits
ETH 310 Bioethics (3)
PBH 120 Intro to Public Health (3)
PSY 101 Psychology (3)
PSY 210 Lifespan Psychology (3)
SOC 101 Sociology (3)
One of: SOC 325 Medical Sociology (3) or SOC 335 Global Health (3) or PBH 335 Determinants of Health or SOC 420 Health and Social Policy (3)

### Literature Analysis: 2 required credits
BIO 345 Journal Club (1, 1)

### Free Electives: 21 required credits

### Program Selectives: 21 required credits

# BACHELOR OF SCIENCE IN HEALTH SCIENCES

| **Natural Science (NS) Selectives:**<br>**4 Courses Req at least 12 Credits**<br>*The courses below were chosen to help students understand the molecular foundations of human disease.* | **Patient and Family Centered Care (PFCC) Selectives:**<br>**9 Credits**<br>*The courses below were chosen to help students begin to understand how to best engage patients and their caregivers as active members of the care team.* |
|---|---|
| CHE 211/212 Organic Chemistry I/II (4, 4)<br>PHY 211/212 College Physics I/II (4, 4)<br>MAT 121 Calculus (4)<br><br>BHS 340 Genetics and Molecular Basis of Disease (3)<br><br>BIO 240 Virology (3)<br>BIO 365 Medical Mycology and Parasitology (3)<br>BIO 615G Public Health Microbiology (3)<br><br>CLS 317 Clinical Hematology (3)<br>CLS 327 Clinical Microbiology I (3)<br>CLS 329 Clinical Microbiology II (3)<br>CLS 337 Clinical Immunology (3)<br>CLS 346 Clinical Chemistry (3)<br><br>FPY 320 Forensic Neuroscience (3)<br><br>PBH 350 Epidemiology (3)<br><br>PSC 215 Pills, Potions, and Poisons: A Pharmacology Primer (3)<br>PSC 311 Biochemistry (3)<br>PSC 315 Immunology (3)<br>PSC 321 Pathophysiology I (4)<br>PSC 322 Pathophysiology II (4)<br>PSC 369 Molecular Foundation of Drug Action (3)<br>PSC 371 Pharmacology I (3)<br>PSC 372 Pharmacology II (3)<br><br>PSY 320 Biopsychology (3)<br>PSY 345 Psychopharmacology (3) | COM 318 Health Teamwork (3)<br>COM 320 Patient-Provider Communication (3)<br>COM 330 Intercultural Communication in Healthcare (3)<br><br>ETH 315 Health Disease and Authority in Medicine (3)<br><br>HUM 220 Medical Humanities<br><br>LAW 300 Elder Abuse (3)<br><br>PAD 451 US and Global Healthcare Systems (3)<br><br>PBH 2XX Nutrition and the American Diet (3)<br>PBH 245 Intro to Health Systems (3)<br>PBH 305 Vaccines in Public Health (3)<br>PBH 310 Medical Anthropology (3)<br>PBH 325 Human Trafficking (3)<br>PBH 335 Determinants of Health (3)<br><br>PSY 292 Motivation (3)<br>PSY 310 Social Psychology (3)<br>PSY 352 Health Psychology (3)<br>PSY 363 Abnormal Psychology (3)<br>PSY 365 Intro to Psychotherapy (3)<br>PSY 440 Death and Dying (3)<br><br>SOC 325 Medical Sociology (3)<br>SOC 420 Health and Social Policy (3) |

# B.S. Health Sciences Sample Schedule

## Year 1

| Fall Semester | | Credits |
|---|---|---|
| BIO 111 | General Biology I | 4 |
| CHE 111 | General Chemistry I | 4 |
| HUM 115 | Voice and Identity | 3 |
| ENG 101 | First Year Writing | 3 |
| PBH 102 | Freshman Seminar | 1 |
| | **Total** | **15** |

| Spring Semester | | Credits |
|---|---|---|
| BIO 121 | General Biology II | 4 |
| CHE 121 | General Chemistry II | 4 |
| HUM 1XX or 2XX | Humanities: Methods and Approaches Selective | 3 |
| PPP 111 | Intro to Health Professions | 1 |
| BHS 201 | Medical Terminology | 3 |
| | **Total** | **15** |

## Year 2

| Fall Semester | | Credits |
|---|---|---|
| BIO 213 | Anatomy & Physiology I | 3 |
| BIO 214 | Anatomy & Physiology I Lab | 1 |
| HUM 2XX | Science and Health - | 3 |
| PSY 101 | Psychology | 3 |
| PBH 120 | Intro to Public Health | 3 |
| | Natural Science Selective 1 | 3-4 |
| | **Total** | **16-17** |

| Spring Semester | | Credits |
|---|---|---|
| BIO 215 | Anatomy & Physiology II | 3 |
| BIO 216 | Anatomy & Physiology II Lab | 1 |
| MAT 145 | Elementary Statistics | 3 |
| SOC 101 | Sociology | 3 |
| | Natural Science Selective 2 | 3-4 |
| | | |
| | **Total** | **13-14** |

## Year 3

| Fall Semester | | Credits |
|---|---|---|
| BIO 210 | Microbiology | 4 |
| BIO 225 | Genetics | 3 |
| | PFCC Selective 1 | 3 |
| | Elective 1 | 3 |
| | Elective 2 | 3 |
| | **Total** | **16** |

| Spring Semester | | Credits |
|---|---|---|
| PPP 380 | Preparation for Health Prof. | 2 |
| BIO 235 | Cell Biology (some paths rec lab) | 3-4 |
| | Natural Science Selective 3 | 3-4 |
| | Elective 3 | 3 |
| | Elective 4 | 3 |
| | **Total** | **14-16** |

## Year 4

| Fall Semester | | Credits |
|---|---|---|
| BIO 345 | Journal Club | 1 |
| ETH 310 | Bioethics | 3 |
| Upper SOC | Global Health OR Determinants of Health OR Health and Social Policy | 3 |
| | Natural Science Selective 4 | 3-4 |
| | Elective 5 | 3 |
| | Elective 6 | 3 |
| | **Total** | **16-17** |

| Spring Semester | | Credits |
|---|---|---|
| BIO 345 | Journal Club | 1 |
| PSY 210 | Lifespan Psych | 3 |
| | PFCC Selective 2 | 3 |
| | PFCC Selective 3 | 3 |
| | Elective 7 | 3 |
| COM Upper | COM 300 Choices | 3 |
| | **Total** | **16** |

# B.S. Health Sciences Pre-PA (3.5 years) Sample Schedule

** Some students will reduce the semester credits by taking courses over the summer or bringing in college credit from High School

| Year 1 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | CHE 121 | General Chemistry II | 4 |
| HUM 115 | Voice and Identity | 3 | HUM 1XX or 2XX | Humanities: Methods and Approaches Selective | 3 |
| ENG 101 | First Year Writing | 3 | PPP 111 | Intro to Health Professions | 1 |
| PBH 102 | Freshman Seminar | 1 | BHS 201 | Medical Terminology | 3 |
| PSY 101 | Psychology | 3 | SOC 101 | Sociology | 3 |
| | **Total** | **18** | | **Total** | **18** |

| Year 2 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 213 | Anatomy & Physiology I | 3 | BIO 215 | Anatomy & Physiology II | 3 |
| BIO 214 | Anatomy & Physiology I Lab | 1 | BIO 216 | Anatomy & Physiology II Lab | 1 |
| HUM 2XX | Science and Health - | 3 | MAT 145 | Elementary Statistics | 3 |
| PBH 120 | Intro to Public Health | 3 | | NS Selective 2 | 3-4 |
| CHE 211 | NS Selective 1 – Organic I | 4 | | PFCC Selective 1 | 3 |
| | Elective 1 | 3 | | Elective 2 | 3 |
| | **Total** | **17** | | **Total** | **16-17** |

| Year 3 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 210 | Microbiology | 4 | PPP 380 | Preparation for Health Prof. | 2 |
| BIO 225 | Genetics | 3 | BIO 235 | Cell Biology | 3 |
| | NS Selective 3 | 3 | PSY 210 | Lifespan Psych | 3 |
| | PFCC Selective 2 | 3 | BIO 345 | Journal Club | 1 |
| | Elective 3 | 3 | COM Upper | COM 300 Choices | 3 |
| | Elective 4 | 3 | | PFCC Selective 3 | 3 |
| | | | | Elective 5 | 3 |
| | **Total** | **19** | | **Total** | **18** |

| Year 4 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | | |
| BIO 345 | Journal Club | 1 | | | |
| ETH 310 | Bioethics | 3 | | | |
| Upper SOC | Upper Social Science | 3 | | | |
| | NS Selective 4 | 3-4 | | | |
| | Elective 6 | 3 | | | |
| | Elective 7 | 3 | | | |
| | **Total** | **16-17** | | | |

## B.S. Health Sciences Sample Pre-Med Schedule

** Some students will reduce the semester credits by taking courses over the summer or bringing in college credit from High School

| Year 1 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | CHE 121 | General Chemistry II | 4 |
| HUM 115 | Voice and Identity | 3 | HUM 1XX or 2XX | Humanities: Methods and Approaches Selective | 3 |
| COM 115 | Principles of Communication | 3 | PPP 111 | Intro to Health Sciences | 1 |
| PBH 102 | First Year Experience | 1 | BHS 201 | Medical Terminology | 3 |
| | **Total** | **15** | | **Total** | **15** |

| Year 2 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| PSY 101 | Psychology | 3 | MAT 145 | Elementary Statistics | 3 |
| PBH 120 | Intro to Public Health | 3 | SOC 101 | Sociology | 3 |
| HUM 2XX | Science and Health Humanities | 3 | PHY 212 | NSS3 – Physics II | 4 |
| PHY 211 | NSS1 – Physics I | 4 | CHE 212 | NSS4 – Organic II | 4 |
| CHE 211 | NSS2 – Organic I | 4 | | | |
| | **Total** | **17** | | **Total** | **14** |

| Year 3 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 210 | Microbiology | 4 | PPP 380 | Preparation for Health Prof. | 2 |
| | Elective 1 – Biochemistry | 3 | BIO 235 | Cell Biology | 3 |
| | Elective 2 - ENG | 3 | BIO 215 | Anatomy & Physiology II | 3 |
| BIO 213 | Anatomy & Physiology I | 3 | BIO 216 | Anatomy & Physiology II Lab | 1 |
| BIO 214 | Anatomy & Physiology I Lab | 1 | | Elective 4 - Calculus | 4 |
| | Elective 3 | 3 | | Elective 5 | 3 |
| | **Total** | **17** | | **Total** | **16** |

| Year 4 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 345 | Journal Club | 1 | BIO 345 | Journal Club | 1 |
| ETH 310 | Bioethics | 3 | PSY 210 | Lifespan Psychology | 3 |
| BIO225 | Genetics | 3 | | PFCC Selective 2 | 3 |
| Upper SOC | Upper Social Science | 3 | | PFCC Selective 3 | 3 |
| | PFCC Selective 1 | 3 | | Elective 7 | 3 |
| | Elective 6 | 3 | COM Upper | COM 300 Choices | 3 |
| | **Total** | **16** | | **Total** | **16** |

## Bachelor of Science in Microbiology

# BIOPHARMACEUTICAL INDUSTRY MICROBIOLOGY TRACK SAMPLE SCHEDULE

| **Term: Fall 1** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO 101 General Biology I | 4 | ☐ | |
| CHE 101 General Chemistry I | 4 | ☐ | |
| HUM 115 Voice and Identity | 3 | ☐ | |
| PSC 110 SRA 1 | 2 | ☐ | |
| PSC115 Survey of Pharm Sci | 1 | ☐ | |
| | | | |
| Term credit total: | 14 | | |

| **Term: Spring 1** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO 102 General Biology II | 4 | ☐ | BIO 101 |
| CHE 102 General Chemistry II | 4 | ☐ | CHE 101 |
| HUM 1xx Humanities Selective 1 | 3 | ☐ | HUM 101 |
| PSC 111 SRA 2 | 2 | ☐ | PSC110 |
| PSY 101 OR SOC 101* | 3 | | |
| NOTE: *Students must take either PSY 101 OR SOC 101 in either semester | | | |
| Term credit total: | 16 | | |

| **Term: Fall 2** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE 211 Organic Chemistry I | 4 | ☐ | CHE 102 |
| PHY 212 OR PHY245 | 4 | ☐ | |
| HUM 2xx Humanities Selective 2 | 3 | ☐ | |
| MAT 121 Calculus I | 4 | ☐ | |
| PSC 112 SRA 3 | 2 | ☐ | |
| Term credit total: | 17 | | |

| **Term: Spring 2** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE 221 Organic Chemistry II | 4 | ☐ | CHE 211 |
| MAT 145 Elementary Statistics | 3 | ☐ | |
| GEN General/Humanities Elective | 3 | ☐ | |
| DIR Directed Elective | 7 | ☐ | |
| | | ☐ | |
| Term credit total: | 17 | | |

| **Term: Fall 3** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 311 Biochemistry | 3 | ☐ | CHE 211 |
| PSC 321 Pathophysiology I | 4 | ☐ | BIO 102 |
| PSC 369 Molecular Foundations of Drug Action I | 3 | ☐ | PHY212 |
| PSC 309 PAT I | 3 | | |
| GEN General/Humanities Elective | 3 | ☐ | |
| Term credit total: | 16 | | |

| **Term: Spring 3** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 312 Molecular Biology | 3 | ☐ | PSC 311 |
| PSC 322 Pathophysiology II | 4 | ☐ | BIO 102 |
| PSC 371 Pharmacology I | 3 | ☒ | PSC311 |
| PSC 310 PAT II | 3 | | |
| DIR Directed Elective | 3 | ☐ | |
| Term credit total: | 16 | | |

| **Term: Fall 4** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 410 Thesis I+ | 3 | ☐ | PSC 309 |
| PSC 409 Capstone* | 3 | ☐ | PSC 115 |
| DIR Directed Elective | 6 | ☐ | |
| Gen General/Humanities Elective | 5 | ☐ | |
| | | | |
| Term credit total: | 14 | | |

| **Term: Spring 4** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 411 Thesis II+ | 3 | ☐ | PSC 410 |
| Capstone Elective * | 3 | ☐ | |
| DIR Directed Elective | 6 | ☐ | |
| GEN General/Humanities Elective | 6 | ☒ | |
| NOTE: *Students take either PSC 410 and PSC 411 (6 credits) OR PSC 409 plus 3 credits Capstone Elective (6 credits) | | | |
| Term credit total: | 15 | | |

| **Program Totals:** | **Credits: 125** | **Prerequisite(s)**: list prerequisite(s) for the noted courses |
|---|---|---|

| **Year 1** | | | | | |
|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | CHE 121 | General Chemistry II | 4 |
| **HUM 115** | **Voice and Identity** | **3** | **HUM 1XX or 2XX** | **Humanities: Methods and Approaches Selective** | **3** |

| | | | | | | |
|---|---|---|---|---|---|---|
| COM 115 | Principles of Communication | 3 | | MAT 121 | Calculus I | 4 |
| BIO 145 | *Elective 1a (Sea-Phage Discovery) | 2 | | BIO 146 | *Elective 1b (Sea-Phage Bioinformatics) | 1 |
| | **Total** | **16** | | | **Total** | **16** |

| **Year 2** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 211 | Organic Chemistry I | 4 | | CHE 212 | Organic Chemistry II | 4 |
| PHY 212 | College Physics I | 4 | | PHY 222 | College Physics II | 4 |
| **HUM 2XX** | **Science and Health through the Humanities Lenses Selective** | **3** | | MAT 145 | Elementary Statistics | 3 |
| BIO 210 | Microbiology | 4 | | BIO 235 | Cell Biology | 3 |
| | Elective 2 | 3 | | | Elective 3 | 3 |
| | **Total** | **18** | | | **Total** | **17** |

| **Year 3** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 311 | Biochemistry | 3 | | BIO 340 | Microbial Genetics | 3 |
| PSC 315 | Immunology | 3 | | BIO 348 | Microbial Fermentation | 3 |
| BIO 410 | Biopharmaceutical Microbiology | 3 | | | Track Elective I (Regulatory science) | 3 |
| BIO 350 | Biomedical Lab Techniques I | 3 | | | Elective 5 | 3 |
| | Elective 4 | 3 | | | Elective 6 | 3 |
| | **Total** | **15** | | | **Total** | **15** |

| **Year 4** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 480 | Micro. Capstone Experience I | 3 | | | INDUSTRY CO-OP | 0 |
| BIO 370 | Microbial Physiology | 3 | | BIO 485 | Micro. Capstone Experience II | 3 |
| BIO 345 | Journal Club | 1 | | BIO 345 | Journal Club | 1 |
| BIO 331 | Mammalian Cell Culture | 3 | | | Elective 7 | 3 |
| PSC 610 | Technical Writing for Biopharmaceutical Industry | 2 | | PSC 320 | Downstream Processing of Biopharmaceutical Products | 3 |
| | Track Elective II (Biopharm Entrepreneuship) | 3 | | | | |
| | **Total** | **15** | | | **Total** | **10** |

*First Year students are automatically registered for the SEA-PHAGE sequence as their elective choice. Students wishing to take another elective should contact the Program Director.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

Biopharm/Industrial Track Electives: A minimum of 5 credits chosen from PSC 646G: Regulatory Science, PHM 324: Pharmaceuticals and Biopharmaceuticals Industry Entrepreneurship, PSC 625G: Clinical Biochemistry, Other courses may be counted at the discretion of the Program Director.

# BIOMEDICAL MICROBIOLOGY TRACK SAMPLE SCHEDULE

| Year 1 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | | CHE 121 | General Chemistry II | 4 |
| **HUM 115** | **Voice and Identity** | **3** | | **HUM 1XX or 2XX** | **Humanities: Methods and Approaches Selective** | **3** |
| COM 115 | Principles of Communication | 3 | | MAT 121 | Calculus I | 4 |
| BIO 145 | *Elective 1a (Sea-Phage Discovery) | 2 | | BIO 146 | *Elective 1b (Sea-Phage Bioinformatics) | 1 |
| | **Total** | **16** | | | **Total** | **16** |

| Year 2 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 211 | Organic Chemistry I | 4 | | CHE 212 | Organic Chemistry II | 4 |
| PHY 212 | College Physics I | 4 | | PHY 222 | College Physics II | 4 |
| **HUM 2XX** | **Science and Health through the Humanities Lenses Selective** | **3** | | MAT 145 | Elementary Statistics | 3 |
| BIO 210 | Microbiology | 4 | | BIO 235 | Cell Biology | 3 |
| | Elective 2 | 3 | | | Elective 3 | 3 |
| | **Total** | **18** | | | **Total** | **17** |

| Year 3 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 311 | Biochemistry | 3 | | BIO 240 | Virology | 3 |
| PSC 315 | Immunology | 3 | | BIO 365 | Med. Mycology and Parasitology | 3 |
| BIO 370 | Microbial Physiology | 3 | | BIO 340 | Microbial Genetics | 3 |
| BIO 350 | Biomedical Lab Techniques I | 3 | | BIO 355 | Biomedical Lab Techniques II | 3 |
| | Elective 4 | 3 | | | Elective 5 | 3 |
| | **Total** | **15** | | | **Total** | **15** |

| Year 4 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 480 | Micro. Capstone Experience I | 3 | | BIO 485 | Micro. Capstone Experience II | 3 |
| BIO 253 | Scientific Communication | 2 | | BIO 680G | Bacterial Pathogenesis | 3 |
| BIO 345 | Journal Club | 1 | | BIO 345 | Journal Club | 1 |
| | Track Elective I | 3 | | | Track Elective II | 3 |
| | Elective 6 | 3 | | | Elective 7 | 3 |
| | **Total** | **12** | | | **Total** | **13** |

*First Year students are automatically registered for the SEA-PHAGE sequence as their elective choice. Students wishing to take another elective should contact the Program Director.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

Biomed Track Electives: A minimum of 5 credits chosen from BIO 225: Genetics (3), BIO 213: Anatomy & Physiology I (3), BIO 215: Anatomy & Physiology II (3), PSC 321: Physiology/Pathophysiology I (3), PSC 322: Physiology/Pathophysiology II (3), BIO 625G: Advanced Molecular Biology (3), BIO 630G: Advanced Cell Biology (3), BIO 690G: Viral Pathogenesis (3), BIO 627G: Innate Immunology (3), BHS 745G: Molecular Diagnostics (3). Other courses may be counted at the discretion of the Program Director.

# BIOMEDICAL MICROBIOLOGY TRACK SAMPLE SCHEDULE

| Year 1 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | | CHE 121 | General Chemistry II | 4 |
| **HUM 115** | **Voice and Identity** | **3** | | **HUM 1XX or 2XX** | **Humanities: Methods and Approaches Selective** | **3** |
| COM 115 | Principles of Communication | 3 | | MAT 121 | Calculus I | 4 |
| BIO 145 | *Elective 1a (Sea-Phage Discovery) | 2 | | BIO 146 | *Elective 1b (Sea-Phage Bioinformatics) | 1 |
| | **Total** | **16** | | | **Total** | **16** |

| Year 2 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 211 | Organic Chemistry I | 4 | | CHE 212 | Organic Chemistry II | 4 |
| PHY 212 | College Physics I | 4 | | PHY 222 | College Physics II | 4 |
| **HUM 2XX** | **Science and Health through the Humanities Lenses Selective** | **3** | | MAT 145 | Elementary Statistics | 3 |
| BIO 210 | Microbiology | 4 | | BIO 235 | Cell Biology | 3 |
| | Elective 2 | 3 | | | Elective 3 | 3 |
| | **Total** | **18** | | | **Total** | **17** |

| Year 3 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 311 | Biochemistry | 3 | | BIO 240 | Virology | 3 |
| PSC 315 | Immunology | 3 | | BIO 365 | Med. Mycology and Parasitology | 3 |
| BIO 370 | Microbial Physiology | 3 | | BIO 340 | Microbial Genetics | 3 |
| BIO 350 | Biomedical Lab Techniques I | 3 | | BIO 355 | Biomedical Lab Techniques II | 3 |
| | Elective 4 | 3 | | | Elective 5 | 3 |
| | **Total** | **15** | | | **Total** | **15** |

| Year 4 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 480 | Micro. Capstone Experience I | 3 | | BIO 485 | Micro. Capstone Experience II | 3 |
| BIO 253 | Scientific Communication | 2 | | BIO 680G | Bacterial Pathogenesis | 3 |
| BIO 345 | Journal Club | 1 | | BIO 345 | Journal Club | 1 |
| | Track Elective I | 3 | | | Track Elective II | 3 |
| | Elective 6 | 3 | | | Elective 7 | 3 |
| | **Total** | **12** | | | **Total** | **13** |

*First Year students are automatically registered for the SEA-PHAGE sequence as their elective choice. Students wishing to take another elective should contact the Program Director.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

Biomed Track Electives: A minimum of 5 credits chosen from BIO 225: Genetics (3), BIO 213: Anatomy & Physiology I (3), BIO 215: Anatomy & Physiology II (3), PSC 321: Physiology/Pathophysiology I (3), PSC 322: Physiology/Pathophysiology II (3), BIO 625G: Advanced Molecular Biology (3), BIO 630G: Advanced Cell Biology (3), BIO 690G: Viral Pathogenesis (3), BIO 627G: Innate Immunology (3), BHS 745G: Molecular Diagnostics (3). Other courses may be counted at the discretion of the Program Director.

# INFECTIOUS DISEASE EPIDEMIOLOGY & PUBLIC HEALTH MICROBIOLOGY TRACK SAMPLE SCHEDULE

| Year 1 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | | CHE 121 | General Chemistry II | 4 |
| **HUM 115** | **Voice and Identity** | **3** | | **HUM 1XX or 2XX** | **Humanities: Methods and Approaches Selective** | **3** |
| COM 115 | Principles of Communication | 3 | | MAT 121 | Calculus I | 4 |
| BIO 145 | *Elective 1a (Sea-Phage Discovery) | 2 | | BIO 146 | *Elective 1b (Sea-Phage Bioinformatics) | 1 |
| | **Total** | **16** | | | **Total** | **16** |

| Year 2 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 211 | Organic Chemistry I | 4 | | CHE 212 | Organic Chemistry II | 4 |
| PHY 212 | College Physics I | 4 | | PHY 222 | College Physics II | 4 |
| **HUM 2XX** | **Science and Health through the Humanities Lenses Selective** | **3** | | MAT 145 | Elementary Statistics | 3 |
| BIO 210 | Microbiology | 4 | | BIO 235 | Cell Biology | 3 |
| PBH 120 | Introduction to Public Health | 3 | | | Elective 2 | 3 |
| | **Total** | **18** | | | **Total** | **17** |

| Year 3 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 311 | Biochemistry | 3 | | BIO 340 | Microbial Genetics | 3 |
| PSC 315 | Immunology | 3 | | BIO 355 | Biomedical Lab Techniques II | 3 |
| BIO 370 | Microbial Physiology | 3 | | | Track Elective I | 3 |
| BIO 350 | Biomedical Lab Techniques I | 3 | | | Elective 3 | 3 |
| BIO 315 | Public Health Microbiology | 3 | | | Elective 4 | 3 |
| | **Total** | **15** | | | **Total** | **15** |

| Year 4 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 480 | Micro. Capstone Experience I | 3 | | BIO 485 | Micro. Capstone Experience II | 3 |
| BIO 253 | Scientific Communication | 2 | | | Track Elective II | 3 |
| BIO 345 | Journal Club | 1 | | BIO 345 | Journal Club | 1 |
| PBH 350 | Epidemiology | 3 | | | Elective 6 | 3 |
| | Elective 5 | 3 | | | Elective 7 | 3 |
| | | | | | | |
| | **Total** | **12** | | | **Total** | **13** |

*First Year students are automatically registered for the SEA-PHAGE sequence as their elective choice. Students wishing to take another elective should contact the Program Director.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

Infectious Disease/Epi Track Electives: A minimum of 5 credits chosen from BIO 213: Anatomy & Physiology I (3), BIO 215: Anatomy & Physiology II (3), PBH 220: Environmental Health (3), PBH 320: Geography of Health (3), SOC 335: Global Health (3), PHM 350, 450: Applied Methods in Epidemiological Research (3), PAD 693: Epidemiology I (3). Other courses may be counted at the discretion of the Program Director.

# B.S. MICROBIOLOGY (BIOMEDICAL TRACK)/ M.S. MOLECULAR BIOSCIENCES SAMPLE SCHEDULE

| Year 1 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | | CHE 121 | General Chemistry II | 4 |
| **HUM 115** | **Voice and Identity** | **3** | | **HUM 1XX or 2XX** | **Humanities: Methods and Approaches Selective** | **3** |
| COM 115 | Principles of Communication | 3 | | MAT 121 | Calculus I | 4 |
| BIO 145 | *Elective 1a (Sea-Phage Discovery) | 2 | | BIO 146 | *Elective 1b (Sea-Phage Bioinformatics) | 1 |
| | **Total** | **16** | | | **Total** | **16** |

| Year 2 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 211 | Organic Chemistry I | 4 | | CHE 212 | Organic Chemistry II | 4 |
| PHY 212 | College Physics I | 4 | | PHY 222 | College Physics II | 4 |
| **HUM 2XX** | **Science and Health through the Humanities Lenses Selective** | **3** | | MAT 145 | Elementary Statistics | 3 |
| BIO 210 | Microbiology | 4 | | BIO 235 | Cell Biology | 3 |
| | Elective 2 | 3 | | | Elective 3 | 3 |
| | **Total** | **18** | | | **Total** | **17** |

| Year 3 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 311 | Biochemistry | 3 | | BIO 240 | Virology | 3 |
| PSC 315 | Immunology | 3 | | BIO 365 | Med. Mycology and Parasitology | 3 |
| BIO 370 | Microbial Physiology | 3 | | BIO 340 | Microbial Genetics | 3 |
| BIO 350 | Biomedical Lab Techniques I | 3 | | BIO 355 | Biomedical Lab Techniques II | 3 |
| | Elective 4 | 3 | | | Elective 5 | 3 |
| | **Total** | **15** | | | **Total** | **15** |

| Year 4 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 480 | Micro. Capstone Experience I | 3 | | BIO 485 | Micro. Capstone Experience II | 3 |
| BIO 253 | Scientific Communication | 2 | | BIO 680G | Bacterial Pathogenesis (UG Req/Graduate Elective) | 3 |
| BIO 345 | Journal Club (UG-1) | 1 | | BIO 345 | Journal Club (UG-2) | 1 |
| | Elective 6 | 3 | | | Elective 7 | 3 |
| BIO625G | Adv. Mol. Biology (UG Track Elective I/Grad Req) | 3 | | BIO 630G | Adv. Cell Biology (UG Track Elective II/Grad Req) | 3 |
| MAT610G | Statistical Inference and Modeling | 3 | | BIO650G | Research Design | 2 |
| BIO670G | Research Rotation (Thesis Track) or Graduate Elective 1 (Capstone Track) | 2 | | | Graduate Elective 2 | 3 |
| | **Total** | **17** | | | **Total** | **18** |

| Year 5- Thesis Track | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| ETH610G | Ethics in Research | 1 | | BIO702G | Thesis Research | 3 |
| BIO701G | Thesis Research | 3 | | | Graduate Elective 4 | 3 |
| BIO660G | Journal Club (G-1) | 1 | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Graduate Elective 3 | 3 | | | | |
| | **Total** | **8** | | | **Total** | **6** |
| **Year 5- Capstone Track** | | | | | | |
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| ETH610G | Ethics in Research | 1 | | | CO-OP (if applicable) | 0 |
| | Graduate Elective 4 | 3 | | BIO665G | Molecular Biosciences Capstone Course | 4 |
| | Graduate Elective 5 | 3 | | BIO660G | Journal Club (G-2) | 1 |
| BIO660G | Journal Club (G-1) | 1 | | | | |
| | **Total** | **8** | | | **Total** | **5** |

*First Year students are automatically registered for the SEA-PHAGE sequence as their elective choice. Students wishing to take another elective should contact the Program Director.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

Courses in red font- Students can simultaneously count 9 credits towards each of the two degree programs (BS and MS).

# B.S. MICROBIOLOGY (INDUSTRIAL MICROBIOLOGY TRACK)/ M.S. MOLECULAR BIOSCIENCES (THESIS TRACK) SAMPLE SCHEDULE

| Year 1 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | | CHE 121 | General Chemistry II | 4 |
| **HUM 115** | **Voice and Identity** | **3** | | **HUM 1XX or 2XX** | **Humanities: Methods and Approaches Selective** | **3** |
| COM 115 | Principles of Communication | 3 | | MAT 121 | Calculus I | 4 |
| BIO 145 | *Elective 1a (Sea-Phage Discovery) | 2 | | BIO 146 | *Elective 1b (Sea-Phage Bioinformatics) | 1 |
| | **Total** | **16** | | | **Total** | **16** |

| Year 2 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 211 | Organic Chemistry I | 4 | | CHE 212 | Organic Chemistry II | 4 |
| PHY 212 | College Physics I | 4 | | PHY 222 | College Physics II | 4 |
| **HUM 2XX** | **Science and Health through the Humanities Lenses Selective** | **3** | | MAT 145 | Elementary Statistics | 3 |
| BIO 210 | Microbiology | 4 | | BIO 235 | Cell Biology | 3 |
| | | | | | Elective 2 | 3 |
| | **Total** | **15** | | | **Total** | **17** |

| Year 3 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| CHE 311 | Biochemistry | 3 | | BIO 348 | Microbial Fermentation | 3 |
| PSC 315 | Immunology | 3 | | BIO 340 | Microbial Genetics | 3 |
| BIO 410 | Biopharmaceutical Microbiology | 3 | | | Elective 5 | 3 |
| BIO 350 | Biomedical Lab Techniques I | 3 | | | Elective 6 | 3 |
| | Elective 3 | 3 | | | Elective 7 | 3 |
| | Elective 4 | 3 | | | | |
| | **Total** | **18** | | | **Total** | **15** |

| Year 4 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 480 | Micro. Capstone Experience I | 3 | | BIO 485 | Micro. Capstone Experience II | 3 |
| BIO 631 | Mammalian Cell Culture (UG Req/Graduate Elective 1) | 3 | | BIO 345 | Journal Club (UG-2) | 1 |
| BIO 370 | Microbial Physiology | 3 | | PSC 320 | Downstream Processing of Biopharmaceutical Products | 3 |
| BIO 345 | Journal Club (UG-1) | 1 | | BIO630G | Adv. Cell Biology | 3 |
| BIO 625G | Adv. Mol. Biology | 3 | | BIO650G | Research Design | 2 |
| PSC 610 | Technical Writing for Biopharmaceutical Industry | 2 | | PSC646G | Regulatory Science (UG Track Elective 1/Graduate Elective 2) | 3 |
| BIO670G | Research Rotation (Thesis Track only) | 2 | | | | |
| | **Total** | **17** | | | **Total** | **15** |
| **Year 5- Thesis Track** | | | | | | |
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| ETH610G | Ethics in Research | 1 | | BIO702G | Thesis Research | 3 |
| BIO701G | Thesis Research | 3 | | | Graduate elective 4 | 3 |
| BIO660G | Journal Club (G-1) | 1 | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| MAT610G | Statistical Inference and Modeling | 3 | | | | |
| PHM324 | Biopharm. Entrepreneurship (UG Track Elective 2/Grad Elective 3) | 3 | | | | |
| | **Total** | **11** | | | **Total** | **6** |

| **Year 5- Capstone Track** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| ETH610G | Ethics in Research | 1 | | | INDUSTRY CO-OP | 0 |
| PHM324 | Biopharm. Entrepreneurship (UG Track Elective 2/Grad Elective 3) | 3 | | BIO665G | Molecular Biosciences Capstone Course | 4 |
| | Graduate Elective 4 | 3 | | BIO660G | Journal Club (G-2) | 1 |
| MAT610G | Statistical Inference and Modeling | 3 | | | Graduate Elective 5 | 3 |
| BIO660G | Journal Club (G-1) | 1 | | | | |
| | **Total** | **11** | | | **Total** | **8** |

*First Year students are automatically registered for the SEA-PHAGE sequence as their elective choice. Students wishing to take another elective should contact the Program Director.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

Courses in red font- Students can simultaneously count 9 credits towards each of the two degree programs (BS and MS).

# B.S. MICROBIOLOGY (INFECTIOUS DISEASE EPIDEMIOLOGY TRACK)/ M.S. MOLECULAR BIOSCIENCES SAMPLE SCHEDULE

| Year 1 | | | | | |
|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 111 | General Biology I | 4 | BIO 121 | General Biology II | 4 |
| CHE 111 | General Chemistry I | 4 | CHE 121 | General Chemistry II | 4 |
| **HUM 115** | **Voice and Identity** | **3** | **HUM 1XX or 2XX** | **Humanities: Methods and Approaches Selective** | **3** |
| COM 115 | Principles of Communication | 3 | MAT 121 | Calculus I | 4 |
| BIO 145 | *Elective 1a (Sea-Phage Discovery) | 2 | BIO 146 | *Elective 1b (Sea-Phage Bioinformatics) | 1 |
| | **Total** | **16** | | **Total** | **16** |

| Year 2 | | | | | |
|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | **Spring Semester** | | **Credits** |
| CHE 211 | Organic Chemistry I | 4 | CHE 212 | Organic Chemistry II | 4 |
| PHY 212 | College Physics I | 4 | PHY 222 | College Physics II | 4 |
| **HUM 2XX** | **Science and Health through the Humanities Lenses Selective** | **3** | MAT 145 | Elementary Statistics | 3 |
| BIO 210 | Microbiology | 4 | BIO 235 | Cell Biology | 3 |
| PBH 120 | Introduction to Public Health | 3 | | Elective 2 | 3 |
| | **Total** | **18** | | **Total** | **17** |

| Year 3 | | | | | |
|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | **Spring Semester** | | **Credits** |
| CHE 311 | Biochemistry | 3 | BIO 340 | Microbial Genetics | 3 |
| PSC 315 | Immunology | 3 | BIO 355 | Biomedical Lab Techniques II | 3 |
| BIO 370 | Microbial Physiology | 3 | | Track Elective 1 | 3 |
| BIO 350 | Biomedical Lab Techniques I | 3 | | Elective 3 | 3 |
| PBH 350 | Epidemiology | 3 | | Elective 4 | 3 |
| | | | | Elective 5 | 3 |
| | **Total** | **15** | | **Total** | **18** |

| Year 4 | | | | | |
|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 480 | Micro. Capstone Experience I | 3 | BIO 485 | Micro. Capstone Experience II | 3 |
| BIO 253 | Scientific Communication | 2 | PAD 693 | Epidemiology (UG Track elective 2/Graduate Elective) | 3 |
| BIO 615 | Public Health Microbiology (UG Req/Graduate Elective 1) | 3 | BIO 345 | Journal Club (UG-2) | 1 |
| BIO 345 | Journal Club (UG-1) | 1 | BIO 630G | Adv. Cell Biology | 3 |
| BIO625G | Adv. Mol. Biology | 3 | BIO650G | Research Design | 2 |
| MAT610G | Statistical Inference and Modeling | 3 | | SUNY transfer course by PD permission (UG Elective 6/Graduate Elective) | 3 |
| BIO670G | Research Rotation (Thesis Track) /Grad Elective 2 (Capstone Track) | 2 | | Elective 7 | 3 |
| | **Total** | **17** | | **Total** | **18** |

| Year 5- Thesis Track | | | | | |
|---|---|---|---|---|---|
| **Fall semester** | | **Credits** | **Spring Semester** | | **Credits** |
| ETH610G | Ethics in Research | 1 | BIO702G | Thesis Research | 3 |
| BIO701G | Thesis Research | 3 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| BIO660G | Journal Club (G-1) | 1 | | | | |
| | Graduate Elective 4 | 3 | | | | |
| | **Total** | **8** | | | **Total** | **3** |
| **Year 5- Capstone Track** | | | | | | |
| **Fall semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| ETH610G | Ethics in Research | 1 | | | INDUSTRY CO-OP | 0 |
| | Graduate Elective 5 | 3 | | BIO665G | Molecular Biosciences Capstone Course | 4 |
| | | | | BIO660G | Journal Club (G-2) | 1 |
| BIO660G | Journal Club (G-1) | 1 | | | | |
| | **Total** | **5** | | | **Total** | **5** |

*First Year students are automatically registered for the SEA-PHAGE sequence as their elective choice. Students wishing to take another elective should contact the Program Director.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

Courses in red font: Students can simultaneously count 9 credits towards each of the two degree programs (BS and MS).

## M.S. MOLECULAR BIOSCIENCES THESIS TRACK SAMPLE SCHEDULE

| YEAR 1 FALL | | | | YEAR 1 SPRING | | |
|---|---|---|---|---|---|---|
| **Code** | **Name** | **Credits** | | **Code** | **Name** | **Credits** |
| BIO 625 | Advanced Molecular Biology | 3 | | BIO630 | Advanced Cell Biology | 3 |
| ETH 610 | Ethics in Research | 1 | | BIO 650 | Research Design | 2 |
| MAT 610 | Statistical Inference and Modeling | 3 | | BIO 660 | Journal Club | 1 |
| BIO 670 | Research Rotation | 2 | | | Elective 1 | 3 |
| | | | | | Elective 2 | 3 |
| **Total Credits** | | **9** | | **Total Credits** | | **12** |

| YEAR 1 FALL | | | | YEAR 1 SPRING | | |
|---|---|---|---|---|---|---|
| **Code** | **Name** | **Credits** | | **Code** | **Name** | **Credits** |
| | Elective 3 | 3 | | | Elective 4 | 3 |
| BIO 701 | Thesis Research | 3 | | BIO 702 | Thesis Research | 3 |
| **Total Credits** | | **6** | | **Total Credits** | | **6** |

*Requires completing Thesis Research after Years 1& 2.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

#All Master's students are encouraged to attend Journal club every semester.

## M.S. MOLECULAR BIOSCIENCES CAPSTONE TRACK SAMPLE SCHEDULE

| YEAR 1 FALL | | | | YEAR 1 SPRING | | |
|---|---|---|---|---|---|---|
| **Code** | **Name** | **Credits** | | **Code** | **Name** | **Credits** |
| BIO 625 | Advanced Molecular Biology | 3 | | BIO 650 | Research Design | 2 |
| ETH 610 | Ethics in Research | 1 | | BIO 630 | Advanced Cell Biology | 3 |
| MAT 610 | Statistical Inference and Modeling | 3 | | | Elective 2 | 3 |
| BIO 660 | Journal Club (G-1) | 1 | | | Elective 3 | 3 |
| | Elective 1 | 3 | | | | |
| **Total Credits** | | **11** | | **Total Credits** | | **11** |

| YEAR 2 FALL | | | | YEAR 2 SPRING | | |
|---|---|---|---|---|---|---|
| **Code** | **Name** | **Credits** | | **Code** | **Name** | **Credits** |
| | Elective 4 | 3 | | | Experiential Learning | 0 |
| | Elective 5 | 3 | | BIO 665 | Molecular Biosciences Capstone Course* | 4 |
| BIO 660 | Journal Club (G-2) | 1 | | | | |
| **Total Credits** | | **7** | | **Total Credits** | | **4** |

*May require completing Capstone Course after Years 1 & 2.

**All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

#All Master's students are encouraged to attend Journal club every semester.

Elective options: Students wanting to specialize in any of the areas listed below should take electives within the color coded group.

Red- Biomedical Microbiology;
Blue- Biochemistry, Cancer Biology, Molecular & Cell Biology;
Green- Clinical Microbiology
Pink- Epidemiology, Public Health Microbiology, Courses at SUNY Albany with permission of PD
Brown- Industrial Microbiology

| GRADUATE ELECTIVES | | | |
|---|---|---|---|
| **Code** | **Course Name** | **Credits** | **Semester Offered** |
| BIO 620 | Advanced Topics in Microbiology | 3 | |
| BIO 627 | Innate Immunology | 3 | |
| BIO 610 | Immunology | 3 | FALL |
| BIO 690 | Viral Pathogenesis | 3 | FALL |
| BIO 680 | Bacterial Pathogenesis | 3 | SPRING |
| BIO 635 | Cell Death and Disease | 3 | SPRING |
| BIO 663 | Mycology and Parasitology | 3 | SPRING |
| PSC 635 | Pharmacological Regulation of Signal Transduction | 3 | SPRING |
| PSC 733 | Pharmacology and Molecular Genetics of Cancer | 3 | FALL |
| PSC 625 | Clinical Biochemistry | 3 | SPRING |
| PSC652 | Using animal models for therapeutic drug discovery | 3 | SPRING |
| CLS 610 | Clinical Microbiology I | 4 | FALL |
| CLS 620 | Clinical Microbiology II | 4 | SPRING |
| BHS 740 | Genetics and Molecular Basis of Disease | 3 | SPRING |
| BHS 745 | Molecular Diagnostics | 3 | FALL |
| BHS 750 | Flow Cytometry | 3 | SUMMER |
| BIO 615 | Public Health Microbiology | 3 | FALL |
| PAD 693 | Epidemiology | 3 | SPRING |
| BIO 648 | Microbial Fermentation | 3 | SPRING |
| BIO 631 | Mammalian Cell Culture | 3 | FALL |
| BIO 655 | Biopharmaceutical Microbiology | 3 | FALL |
| BIO 641 | Current Topics in Biopharmaceutical Technology | 3 | |
| BIO 610 | Technical Writing for the Biopharmaceutical Industry | 3 | FALL |
| PSC 620 | Downstream Processing of Biopharmaceutical Products | 3 | SPRING |
| PSC 646 | Regulatory Science | 3 | SPRING |
| PSC631 | Foundations of Pharm Sci | 3 | FALL |

# BS Pharmaceutical Sciences (Pharmacy Skills concentration), BS-only example curriculum

| Term: Fall 1 | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO101 General Biology I | 4 | ☐ | |
| CHE101 General Chemistry I | 4 | ☐ | |
| HUM115 Voice and Identity | 3 | ☐ | |
| PSY101 General Psychology | 3 | ☐ | |
| PSC115 Survey of Pharm Sci | 1 | ☐ | |
| Term credit total: | 15 | | |

| Term: Spring 1 | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO 102 General Biology II | 4 | ☐ | BIO 101 |
| CHE 102 General Chemistry II | 4 | ☐ | CHE 101 |
| HUM 1XX Humanities Selective 1 | 3 | ☐ | HUM 115 |
| MAT111 Calculus I | 4 | | |
| COM115 Principles of Communication | 3 | | |
| Term credit total: | 18 | | |

| Term: Fall 2 | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE211 Organic Chemistry I | 4 | ☐ | CHE 102 |
| PHY245 Physics for Life Sciences | 4 | ☐ | |
| HUM 2XX Humanities Selective 2 | 3 | ☐ | HUM 102 |
| BIO210 Microbiology | 4 | ☐ | |
| BIO Bioselective 1 | 3 | ☐ | |
| Term credit total: | 18 | | |

| Term: Spring 2 | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE 221 Organic Chemistry II | 4 | ☐ | CHE 211 |
| MAT 145 Elementary Statistics | 3 | ☐ | |
| BIO Bioselective II | 3 | ☐ | |
| PSC280 Intro to Pharm Calc | 2 | ☐ | |
| DIR Directed Elective | 4 | ☐ | |
| Term credit total: | 16 | | |

| Term: Fall 3 (No P1 entry; BS completion ONLY) | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC311 Biochemistry | 3 | ☐ | CHE 211 |
| PSC369 MFDA | 3 | ☐ | BIO210 |
| PSC321 Physiology/Pathophysiology I | 4 | ☐ | |
| PSC309 PAT I | 3 | ☐ | |
| DIR Directed Elective | 3 | | |
| Term credit total: | 16 | | |

| Term: Spring 3 | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 312 Molecular Biology | 3 | ☐ | PSC 311 |
| PSC 322 Pathophysiology II | 4 | ☐ | BIO 102 |
| PSC 371 Pharmacology I | 3 | ☒ | PSC311 |
| PSC310 PAT II | 3 | ☐ | |
| DIR Directed Elective | 3 | | |
| Term credit total: | 16 | | |

| Term: Fall 4A (No P1 entry; BS completion ONLY) | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC341 Pharmaceutics I | 3 | ☐ | PSC 311 |
| PSC372 Pharmacology II | 3 | ☐ | PSC371 |
| ECN317 Health Economics | 3 | ☐ | |
| DIR Directed Elective | 6 | | |
| Term credit total: | 15 | | |

| Term: Spring 4A | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC342 Pharmaceutics II | 3 | ☐ | PSC341 |
| PSC409 Capstone | 3 | ☐ | PSC309 |
| PSC315 Immunology | 3 | ☐ | |
| DIR Directed Elective | 6 | ☒ | |
| Term credit total: | 15 | | |

# BS Pharmaceutical Sciences (Pharmacy Skills concentration) P1 matriculation at Year 3; BS completion Year 4

| **Term: Fall 1** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO101 General Biology I | 4 | ☐ | |
| CHE101 General Chemistry I | 4 | ☐ | |
| HUM115 Voice and Identity | 3 | ☐ | |
| PSY101 General Psychology | 3 | ☐ | |
| PSC115 Survey of Pharm Sci | 1 | ☐ | |
| Term credit total: | 15 | | |

| **Term: Spring 1** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO 102 General Biology II | 4 | ☐ | BIO 101 |
| CHE 102 General Chemistry II | 4 | ☐ | CHE 101 |
| HUM 1XX Humanities Selective 1 | 3 | ☐ | HUM 115 |
| MAT111 Calculus I | 4 | | |
| COM115 Principles of Communication | 3 | | |
| Term credit total: | 18 | | |

| **Term: Fall 2** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE211 Organic Chemistry I | 4 | ☐ | CHE 102 |
| PHY245 Physics for Life Sciences | 4 | ☐ | |
| HUM 2XX Humanities Selective 2 | 3 | ☐ | HUM 102 |
| BIO210 Microbiology | 4 | ☐ | |
| BIO Bioselective 1 | 3 | ☐ | |
| Term credit total: | 18 | | |

| **Term: Spring 2** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE 221 Organic Chemistry II | 4 | ☐ | CHE 211 |
| MAT 145 Elementary Statistics | 3 | ☐ | |
| BIO Bioselective II | 3 | ☐ | |
| PSC280 Intro to Pharm Calc | 2 | ☐ | |
| DIR Directed Elective | 4 | ☐ | |
| Term credit total: | 16 | | |

| **Term: Fall 3 (P1 entry)** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC311 Biochemistry | 3 | ☐ | CHE 211 |
| PSC369 MFDA | 3 | ☐ | BIO210 |
| PSC321 Physiology/Pathophysiology I | 4 | ☐ | |
| PSC341 Pharmaceutics I | 3 | ☐ | |
| PSL331 Pharmacy Skills I | 2 | | |
| PHM318 Foundations of Pharmacy | 2 | | |
| Term credit total: | 17 | | |

| **Term: Spring 3** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 312 Molecular Biology | 3 | ☐ | PSC 311 |
| PSC 322 Pathophysiology II | 4 | ☐ | BIO 102 |
| PSC 371 Pharmacology I | 3 | ☒ | PSC311 |
| PSC342 Pharmaceutics II | 3 | ☐ | |
| PSL332 Pharmacy Skills II | 2 | | |
| PHM329 Self-Care/OTC | 3 | | |
| Term credit total: | 18 | | APhA Immuniz. Certificate |

| **Term: Fall 4B (P2)** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC372 Pharmacology II | 3 | | |
| PSC441 Pharmacokinetics | 3 | | |
| PTP440 Cardio PTPM | 3 | | |
| PHD410 Drug Info | 3 | | |
| PSL431 Pharmacy Skills III | 2 | | |
| IPS401 IPS Intro | 1 | | |
| PE Professional Elective (ECN317) | 3 | | |
| | | | |
| Term credit total: | 18 | | |

| **Term: Spring 4B (Completion of BS; continue to P3)** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC370 Pharmacogenomics | 2 | | |
| PSC315 Immunology | 3 | | |
| PTP425 Endocrine PTPM | 2 | | |
| PTP525 Nephro/Tox PTPM | 2 | | |
| PTP446 Infectious Disease PTPM | 3 | | |
| PSL432 Pharmacy Skills IV | 2 | | |
| IPS402 IPS Basic | 1 | | |
| PE Professional Elective | | | |
| Term credit total: | 15-18 | | |

## BS in Pharmaceutical Sciences (Pharmacy Skills concentration), Required "Core" Courses:

| | | |
|---|---|---|
| **Physical Sciences and Mathematics (41 Credits)** | | |
| CHE111 | General Chemistry I | 4 |
| CHE121 | General Chemistry II | 4 |
| CHE211 | Organic Chemistry I | 4 |
| CHE221 | Organic Chemistry II | 4 |
| PHY245 | Physics for Life Sciences | 4 |
| MAT111 | Calculus I | 4 |
| MAT145 | Elementary Statistics | 3 |
| PSC280 | Intro to Pharmaceutical Calc | 2 |
| PSC341 | Pharmaceutics I | 3 |
| PSC342 | Pharmaceutics II | 3 |
| PSC309* | Pharmaceutical Analytical Techniques I* | 3 |
| PSC310* | PAT II* | 3 |
| **Biological Sciences (38 Credits)** | | |
| BIO111 | General Biology I | 4 |
| BIO121 | General Biology II | 4 |
| BIO210 | Microbiology | 4 |
| PSC311 | Biochemistry | 3 |
| PSC312 | Molecular Biology | 3 |
| PSC315 | Immunology | 3 |
| PSC321 | Pathophysiology I | 4 |
| PSC322 | Pathophysiology II | 4 |
| PSC369 | Molecular Foundations of Drug Action | 3 |
| PSC371 | Pharmacology I | 3 |
| PSC372 | Pharmacology II | 3 |
| PSC409 | Capstone* | 3 |
| **Communications, Humanities and General Education (18 Credits)** | | |
| COM115 | Principles of Communication | 3 |
| HUM115 | Voice and Identity | 3 |
| HUM1xx | Humanities Selective 1 | 3 |
| HUM2xx | Humanities Selective 2 | 3 |
| PSY101 | Psychology | 3 |
| ECN317 | Health Economics | 3 |
| **Bioselective (6 Credits)** | | |
| | Bioselective I | 3 |
| | Bioselective II | 3 |
| **Directed Elective (22 Credits)** | | |
| | Directed Elective | 22 |

NOTE: * indicates course may be replaced by requirements in the PharmD curriculum

# 5-year Dual Degree BS/MS Pharmaceutical Sciences, example curriculum

| **Term: Fall 1** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO 101 General Biology I | 4 | ☐ | |
| CHE 101 General Chemistry I | 4 | ☐ | |
| HUM 115 Voice and Identity | 3 | ☐ | |
| PSC 110 SRA 1 | 2 | ☐ | |
| PSC115 Survey of Pharm Sci | 1 | ☐ | |
| NOTE: Students must take EITHER PSY101 (Fall) or SOC101 (Spring) | | | |
| Term credit total: | 14-17 | | |

| **Term: Spring 1** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO 102 General Biology II | 4 | ☐ | BIO 101 |
| CHE 102 General Chemistry II | 4 | ☐ | CHE 101 |
| HUM 1xx Humanities Selective 1 | 3 | ☐ | HUM 101 |
| PSC 111 SRA 2 | 2 | ☒ | |
| PSY 101 OR SOC 101* | 3 | ☐ | PSC110 |
| GEN General/Humanities Elective | 3 | | |
| Term credit total: | 13-16 | | |

| **Term: Fall 2** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE 211 Organic Chemistry I | 4 | ☐ | CHE 102 |
| PHY 212 OR PHY245 | 4 | ☐ | |
| HUM 2xx Humanities Selective 2 | 3 | ☐ | HUM 102 |
| MAT 121 Calculus I | 4 | ☐ | |
| PSC 112 SRA 3 | 2 | ☐ | |
| Term credit total: | 17 | | |

| **Term: Spring 2** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE 221 Organic Chemistry II | 4 | ☐ | CHE 211 |
| MAT 145 Elementary Statistics | 3 | ☐ | |
| GEN General/Humanities Elective | 3 | ☐ | |
| DIR Directed Elective | 7 | ☐ | |
| | | ☐ | |
| Term credit total: | 17 | | |

| **Term: Fall 3** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 311 Biochemistry | 3 | ☐ | CHE 211 |
| PSC 321 Pathophysiology I | 4 | ☐ | BIO 102 |
| PSC 369 MFDA | 3 | ☐ | |
| PSC 309 PAT I | 3 | ☐ | |
| GEN General/Humanities Elective | 3-6 | | |
| Term credit total: | 16-19 | | |

| **Term: Spring 3** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 312 Molecular Biology | 3 | ☐ | PSC 311 |
| PSC 322 Pathophysiology II | 4 | ☐ | BIO 102 |
| PSC 371 Pharmacology I | 3 | ☒ | PSC311 |
| PSC 310 PAT II | 3 | ☐ | |
| DIR Directed Elective | 3 | | |
| Term credit total: | 16 | | |

| **Term: Fall 4** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC631G Foundations of Pharm. Sci. | 3 | ☐ | PSC 311 |
| PSC672G: Exp Design Data Analysis | 2 | ☐ | |
| PSC410 OR PSC409 | 3 | | |
| ETH610: Ethics in Research | 1 | | |
| DIR Directed Elective | 6 | ☐ | |
| PSC651G Pharm Sci Journal Club | 1 | ☐ | |
| Term credit total: | 16 | | |

| **Term: Spring 4** | | | |
|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) |
| Core MSPS Specialization Course | 3 | ☐ | |
| Graduate Elective (UG DIR Elective) | 3 | ☐ | |
| PSC411 OR Capstone Selective | 3 | | |
| DIR Directed Elective | 3 | ☐ | |
| PSC661G Research Rotation | 2 | | |
| GEN General Elective | 2-5 | ☐ | |
| Term credit total: | 16 - 19 | | |

NOTE: Courses in red text indicate graduate-level course counted for both undergraduate and graduate credit

# 5-year Dual Degree BS/MS Pharmaceutical Sciences, example curriculum

| **Term: Fall 5** | | | | | **Term: Spring 5** | | | |
|---|---|---|---|---|---|---|---|---|
| Core MSPS Specialization Course | 3 | | | | Graduate Elective | 3 | | |
| Graduate Elective | 3 | | | | Graduate Elective | 3 | | |
| PSC761G (MS) Thesis Research | 4 | | | | PSC761G (MS) Thesis Research | 4 | | |
| | | | | | PSC651G Pharm Sci Journal Club | 1 | | |
| Term credit total: | 10 | | | | Term credit total | 11 | | |

# BS Pharmaceutical Sciences, example Pre-Med curriculum (Pre-Med coursework highlighted in yellow)

| Term: Fall 1 | | | | Term: Spring 1 | | | |
|---|---|---|---|---|---|---|---|
| **Course Number & Title** | Credits | New | Prerequisite(s) | **Course Number & Title** | Credits | New | Prerequisite(s) |
| BIO 101 General Biology I | 4 | ☐ | | BIO 102 General Biology II | 4 | ☐ | BIO 101 |
| CHE 101 General Chemistry I | 4 | ☐ | | CHE 102 General Chemistry II | 4 | ☐ | CHE 101 |
| HUM 115 Voice and Identity | 3 | ☐ | | HUM 1xx Humanities Selective 1 | 3 | ☐ | HUM 101 |
| PSC 110 SRA 1 | 2 | ☐ | | PSC 111 SRA 2 | 2 | ☐ | PSC110 |
| PSC115 Survey of Pharm Sci | 1 | ☐ | | PSY 101 OR SOC 101* | 3 | | |
| | | | | NOTE: *Students must take either PSY 101 OR SOC 101 in either semester | | | |
| Term credit total: | 14 | | | Term credit total: | 16 | | |
| **Term: Fall 2** | | | | **Term: Spring 2** | | | |
| **Course Number & Title** | Credits | New | Prerequisite(s) | **Course Number & Title** | Credits | New | Prerequisite(s) |
| CHE 211 Organic Chemistry I | 4 | ☐ | CHE 102 | CHE 221 Organic Chemistry II | 4 | ☐ | CHE 211 |
| PHY 212 OR PHY245 | 4 | ☐ | | MAT 145 Elementary Statistics | 3 | ☐ | |
| HUM 2xx Humanities Selective 2 | 3 | ☐ | | GEN General/Humanities Elective | 3 | ☐ | |
| MAT 121 Calculus I | 4 | ☐ | | DIR Directed Elective (incl PHY222) | 7 | ☐ | |
| PSC 112 SRA 3 | 2 | ☐ | | | | ☐ | |
| Term credit total: | 17 | | | Term credit total: | 17 | | |
| **Term: Fall 3** | | | | **Term: Spring 3** | | | |
| **Course Number & Title** | Credits | New | Prerequisite(s) | **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 311 Biochemistry | 3 | ☐ | CHE 211 | PSC 312 Molecular Biology | 3 | ☐ | PSC 311 |
| PSC 321 Pathophysiology I | 4 | ☐ | BIO 102 | PSC 322 Pathophysiology II | 4 | ☐ | BIO 102 |
| PSC 369 Molecular Foundations of Drug Action I | 3 | ☐ | PHY212 | PSC 371 Pharmacology I | 3 | ☒ | PSC311 |
| PSC 309 PAT I | 3 | | | PSC 310 PAT II | 3 | | |
| GEN General/Humanities Elective | 3 | ☐ | | DIR Directed Elective | 3 | ☐ | |
| Term credit total: | 16 | | | Term credit total: | 16 | | |
| **Term: Fall 4** | | | | **Term: Spring 4** | | | |
| **Course Number & Title** | Credits | New | Prerequisite(s) | **Course Number & Title** | Credits | New | Prerequisite(s) |
| PSC 410 Thesis I+ | 3 | ☐ | PSC 309 | PSC 411 Thesis II+ | 3 | ☐ | PSC 410 |
| PSC 409 Capstone* | 3 | ☐ | PSC 115 | Capstone Elective * | 3 | ☐ | |
| DIR Directed Elective | 6 | ☐ | | DIR Directed Elective | 6 | ☐ | |
| Gen General/Humanities Elective | 5 | ☐ | | GEN General/Humanities Elective | 6 | ☒ | |
| | | | | NOTE: *Students take either PSC 410 and PSC 411 (6 credits) OR PSC 409 plus 3 credits Capstone Elective (6 credits) | | | |
| Term credit total: | 14 | | | Term credit total: | 15 | | |
| **Program Totals:** | **Credits: 125** | | **Prerequisite(s)**: list prerequisite(s) for the noted courses | | | | |

## BS Pharmaceutical Sciences

| Course Number | Course Title | Course Credits |
|---|---|---|
| | **Required: Biological Sciences** | **28** |
| BIO101 | General Biology I | 4 |
| BIO102 | General Biology II | 4 |
| PSC311 | Biochemistry | 3 |
| PSC312 | Molecular Biology | 3 |
| PSC321 | Pathophysiology I | 4 |
| PSC322 | Pathophysiology II | 4 |
| PSC369* | Molecular Foundations of Drug Action I | 3 |
| PSC371 | Pharmacology I | 3 |
| | **Required: Physical Sciences and Math** | **33** |
| CHE101 | General Chemistry I | 4 |
| CHE102 | General Chemistry II | 4 |
| CHE211 | Organic Chemistry I | 4 |
| CHE212 | Organic Chemistry II | 4 |
| PHY221 * | College Physics I | 4 |
| PHY245 * | Physics for Life Sciences | 4 |
| MAT121 | Calculus I | 4 |
| MAT145 | Elementary Statistics | 3 |
| PSC309 | Pharmaceutical Analytical Techniques I | 3 |
| PSC310 | Pharmaceutical Analytical Techniques II | 3 |
| | **Required: Communications and Humanities** | **12** |
| HUM115 | Voice and Identity | 3 |
| HUM1xx | Humanities Selective 1 | 3 |
| HUM2xx | Humanities Selective 2 | 3 |
| PSY101* | General Psychology | 3 |
| SOC101* | Intro to Sociology | 3 |
| | **Required: Interdisciplinary/Research** | **13** |
| PSC110 | SRA 1 | 2 |
| PSC111 | SRA 2 | 2 |
| PSC112 | SRA 3 | 2 |
| PSC410 | Thesis I + | 3 |
| PSC411 | Thesis II + | 3 |
| PSC409 | Capstone + | 3 |
| | Capstone Selective + | 3 |
| PSC115 | Survey of Pharm Sci | 1 |
| | **Required: Electives** | **39** |
| GEN | General Ed elective minimum | 8 |
| HUM | Humanities elective minimum | 9 |
| DIR | Directed elective minimum | 22 |
| **Total credit hours for BS degree: 125** | | |

NOTE: * indicates students should select ONE of the potential courses to complete the requirement; + indicates students should either complete PSC410 & PSC411 or PSC409 & 3-credit Capstone selective

## MS Pharmaceutical Sciences Thesis Track Sample Schedule (Total Credits: 33)

| Semester: Fall 1 | | Semester: Spring 1 | |
|---|---|---|---|
| Course Number & Title | Credits | Course Number & Title | Credits |
| PSC 631 Foundations of Pharmaceutical Sciences | 3 | PSC XXX Core MS Specialization Course | 3 |
| PSC 672 Experimental Design and Data Analysis | 2 | MS Elective | 3 |
| PSC 661 MS Research Rotation | 2 | PSC 651 Pharmaceutical Sciences Journal Club | 1 |
| ETH 610 Ethics in Research | 1 | PSC 761 MS Thesis Research | 2 |
| PSC 651 Pharmaceutical Sciences Journal Club | 1 | | |
| Semester credit total: | 9 | Semester credit total: | 9 |
| Semester: Fall 2 | | Semester: Spring 2 | |
| Course Number & Title | Credits | Course Number & Title | Credits |
| PSC 761 MS Thesis Research | 3 | PSC 761 MS Thesis Research | 3 |
| PSC XXX Core MS Specialization Course | 3 | MS Elective | 3 |
| MS Elective | 3 | | |
| Semester credit total: | 9 | Semester credit total: | 6 |
| Total fall credit total: | 18 | Total spring credit total: | 15 |
| Total Program Credits: 33 | | | |

## MS Pharmaceutical Sciences Capstone (Non-Thesis) Track Sample Schedule (Total Credits: 33)

| Semester: Fall 1 | | Semester: Spring 1 | |
|---|---|---|---|
| Course Number & Title | Credits | Course Number & Title | Credits |
| PSC 631 Foundations of Pharmaceutical Sciences | 3 | PSC XXX Core MS Specialization Course | 3 |
| PSC 672 Experimental Design and Data Analysis | 2 | MS Elective | 3 |
| PSC 661 MS Research Rotation | 2 | MS Elective | 3 |
| ETH 610 Ethics in Research | 1 | | |
| PSC 651 Pharmaceutical Sciences Journal Club | 1 | | |
| Semester credit total: | 9 | Semester credit total: | 9 |
| Semester: Fall 2 | | Semester: Spring 2 | |
| Course Number & Title | Credits | Course Number & Title | Credits |
| PSC XXX Core MS Specialization Course | 3 | PSC 750 Capstone | 3 |
| MS Elective | 3 | MS Elective | 3 |
| MS Elective | 3 | | |
| Semester credit total: | 9 | Semester credit total: | 6 |
| Total fall credit total: | 18 | Total spring credit total: | 15 |
| Total Program Credits: 33 | | | |

## M.S. Pharmaceutical Sciences (continued)

Students must choose 2 courses (3 credits each) from the following list of specialized core courses:

PSC 757G Quantitative Drug Design offered in Spring
PSC 733G Pharmacology and Molecular Genetics of Cancer offered in Fall
PSC 646G Regulatory Science (online) offered in Spring
PSC 620G Downstream Processing of Biopharmaceutical Products offered in Spring
BIO 631G Mammalian Cell culture offered in Fall

MS Elective courses could include any of the following:
PSC 625 Clinical Biochemistry in Spring (online)
PSC 624G Industry Pharma & Biopharma Entrepreneurship in Fall (online)
BIO 630 Advanced Cell Biology in Spring
BIO 635 Cell Death and Disease in Spring
PSC 609 Pharmaceutical Analytical Techniques I in Fall
PSC 610 Pharmaceutical Analytical Techniques II in Spring

Elective credits can be satisfied by any graduate level course. Students will work with their faculty advisor to choose elective courses from the above or others that will help them achieve a desired specialization or focus.

Students can also select electives from the specialized courses list, if interested.

# BACHELOR OF SCIENCE IN PSYCHOLOGY

## Program Purpose

The Bachelor of Science degree in psychology at ACPHS will offer students the opportunity to develop extensive knowledge of the discipline of psychology as a science including its modes of inquiry and major schools of thought. Emphasis is on the holistic appreciation of the human being through an understanding of the interactions among cognitive, social, emotional, and biological factors. The Psychology program prepares students to pursue graduate study in a variety of fields such as psychology, business, counseling, social work, neuroscience, health psychology, and medicine. The major also prepares students to enter careers in healthcare, human services, business, and industry.

## Program Objectives

The Psychology (BS) major has been developed with guidance from the five learning objectives recommended for undergraduate Psychology programs by the American Psychological Association. These objectives include Knowledge Base in Psychology, Scientific Inquiry and Critical Thinking, Ethical and Social Responsibility in a Diverse World, Communication, and Professional Development. Objectives specific to our program are:

1. Program graduates will demonstrate a working knowledge of the traditional and emerging disciplines of psychology and related fields.
2. Graduates will be able to obtain, interpret, and apply information regarding psychology-related issues from scientific literature. They will integrate and apply knowledge to solve complex scientific problems and effectively communicate scientific and healthcare information with diverse audiences using textual, oral, visual, and digital media.
3. Graduates will demonstrate intra- and interpersonal skills required of practicing psychology professionals, including but not limited to, communication skills, professionalism, creative thinking, leadership, and teamwork.

## Bachelor of Psychology Sample Schedule

| **Year 1** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| COM 115 | Principles of Communication | 3 | | BIO 102 | General Biology II | 4 |
| HUM 115 | Voice and Identity | 3 | | PBH 210 | Intro to Data | 3 |
| PSY 180 | First Year Seminar in Psychology | 3 | | HUMXXX | Humanities Selective | 3 |
| PSY 110 | Foundations of Psychology 1 | 3 | | PSY 111 | Foundations of Psychology 2 | 3 |
| | | | | | Elective | 3 |
| | **Total** | **12** | | | **Total** | **16** |

# BACHELOR OF SCIENCE IN PSYCHOLOGY

| Year 2 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| PSY 295 | Research Methods 1 | 4 | | PSY 299 | Research Methods 2 | 4 |
| | Developmental Selective | 3 | | | Empirical Selective | 3-4 |
| | Humanities Selective | 3 | | | Psychology Elective | 3 |
| | Psychology Elective | 3 | | | Elective | 3 |
| | Elective | 3 | | | Elective | 3 |
| | | | | | | |
| | **Total** | **16** | | | **Total** | **17** |

| Year 3 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| PSY 320 | Biopsychology | 4 | | | Empirical Selective | 3-4 |
| PSY 352 | Health Psychology | 3 | | | Concentration Course | 3 |
| PSY 363 | Psychopathology | 3 | | | Psychology Elective | 3 |
| | Developmental Selective | 3 | | | Psychology Elective | 3 |
| | | | | | Elective | 3 |
| | | | | | | |
| | **Total** | **13** | | | **Total** | **15** |

| Year 4 | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| PSY 498 | Senior Seminar: Research in Psychology | 4 | | | Concentration Course | 3 |
| | Concentration Course | 3 | | | Concentration Course | 3 |
| | Concentration Course | 3 | | | Elective | 3 |
| | Concentration Course | 3 | | | Elective | 3 |
| | Elective | 3 | | | Elective | 3 |
| | | | | | | |
| | **Total** | **16** | | | **Total** | **15** |

## Bachelor of Psychology Concentration Courses:

| **Neuroscience** | **Fall – odd years** | **Spring – odd years** |
|---|---|---|
| Choose 18 credits from: | BIO 213 Anatomy and Phys I<br>CHE111 General Chemistry I *<br>PSY 345 Introduction to Psychopharmacology | FPY 320 Forensic Neuroscience<br>CHE 121 General Chemistry II<br>PSY 330 Neuropsychology<br>PSY 391 Learning & Memory |
| | **Fall – even years** | **Spring – even years** |
| | BIO 213 Anatomy and Phys I<br>CHE111 General Chemistry I *<br>PSY 345 Introduction to Psychopharmacology | FPY 320 Forensic Neuroscience<br>CHE 121 General Chemistry II<br>PSY 330 Neuropsychology<br>PSY 375 Sensation & Perception |

| **Health psychology** | **Fall – odd years** | **Spring – odd years** |
|---|---|---|
| Choose 18 credits from: | COM 312 Health Promotions or<br>COM 315 Health Campaigns *<br>PSY 310 Social Psychology<br>PSY 292 Motivation | PSY 200 Human Sexuality<br>PSY 290 Psychological Perspectives on Death & Dying or PSY 440 Death and Dying *<br>PSY 330 Neuropsychology |
| | **Fall – even years** | **Spring – even years** |
| | COM 312 Health Promotions or<br>COM 315 Health Campaigns *<br>PSY 310 Social Psychology<br>PSY 292 Motivation | PSY 200 Human Sexuality<br>PSY 330 Neuropsychology |

| **Clinical/Counseling Concentration** | **Fall – odd years** | **Spring – odd years** |
|---|---|---|
| Choose 18 credits from: | PSY 365 Introduction to Psychotherapy<br>PSY 345 Introduction to Psychopharmacology*<br>PSY 415 Clinical Psychology* | PSY 200 Human Sexuality<br>PSY 290 Psychological Perspectives on Death & Dying or PSY 440 Death and Dying<br>PSY 330 Neuropsychology<br>PSY 410 Psychometrics<br>PSY 364 Child & Adolescent Psychopathology |
| | **Fall – even years** | **Spring – even years** |
| | PSY 365 Introduction to Psychotherapy<br>PSY 345 Introduction to Psychopharmacology*<br>PSY 415 Clinical Psychology* | PSY 200 Human Sexuality<br>PSY 330 Neuropsychology<br>PSY 410 Psychometrics<br>PSY 364 Child & Adolescent Psychopathology |

* Course is required for respective concentration

# BACHELOR OF SCIENCE IN PUBLIC HEALTH

| Year 1 | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| HUM 115 | Voice and Identity | 3 | HUM 1xx or 2xx | Humanities: Methods and Approaches Selective | 3 |
| BIO 111 | General Biology I + Lab | 4 | BIO 121 | General Biology II + Lab | 4 |
| COM 101 | Academic Reading and Writing | 3 | COM 120 | Public Speaking | 3 |
| PSY 101 | Psychology | 3 | SOC 101 | Sociology | 3 |
| PBH 120 | Intro to Public Health | 3 | | Elective | 3 |
| PBH 102 | First Year Experience | 1 | | | |
| | **Total** | **17** | | **Total** | **16** |
| **Year 2** | | | | | |
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| HUM 2xx or HUM 220 | Science and Health through the Humanities Lenses Selective or Medical Humanities | 3 | PBH 245 | Intro to Health Systems | 3 |
| MAT 121 | Calculus I or another Math Course | 4 | PBH 210 | Persuasion | 3 |
| PBH 230 | Statistics for Public Health | 3 | PBH 210/211 | Intro to Data & Lab | 4 |
| SOC 335 | Global Health | 3 | PBH 220 | Environmental Health | 3 |
| PHI 2xx | Critical Thinking | 3 | | Applied Biological Science Selective | 3 |
| | | | PBH 225 | Seminar in Health Professions | 1 |
| | **Total** | **16** | | **Total** | **17** |
| **Year 3** | | | | | |
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| SOC 301 ETH 320 | Research Methods and Research Ethics | 4 | PBH 345 | Community Health Practice | 3 |
| ETH 310 | Bioethics | 3 | | Elective | 3 |
| PBH 350 | Epidemiology | 3 | COM 312 PSY 321 | Health Promotion or Health Psychology | 3 |
| PBH 365 | Service Learning Experience | 1 | | Elective | 3 |
| PBH 335 | Determinants of Health | 3 | | Applied Research Methods Selective | 3 |
| | | | PBH 365 | Service Learning Experience | 1 |
| | **Total** | **14** | | **Total** | **16** |
| **Year 4** | | | | | |
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| SOC 420 | Health and Public Policy | 3 | PBH 401 | Capstone or Elective | 3 |
| | Capstone or Elective | 3 | | Elective | 3 |
| | Selective | 3 | | Critical Reflection Selective | 3 |
| | Culture and Communication Selective | 3 | | Health Care Systems Selective | 3 |
| | Elective | 3 | | Elective | 3 |
| | **Total** | **15** | | **Total** | **15** |
| **Total Credits 126** | | | | | |

## *BS Public Health Electives*

*Applied Biological Sciences Selective*

- BHS 360 Clinical Anatomy
- BIO 210 Microbiology
- BIO 213 Anatomy & Physiology I
- BIO 215 Anatomy & Physiology II
- BIO 225 Genetics
- BIO 315 Public Health Microbiology
- BHS 365 Intro to Human Pathology

# BACHELOR OF SCIENCE IN PUBLIC HEALTH

## *BS Public Health Selectives*

*Culture and Communication Selective*

- COM 320 Patient-Provider Communication
- COM 330 Intercultural Communication in Health Care
- HUM 386 Culture, Customs and Health of Belize
- SOC 330 Culture of Disability
- COM 318 Health Teamwork
- COM 315 Health Campaigns
- HUM 345 Race and Health or permission of program director

*Applied Research Methods Selective*

- PBH 340 Survey Research Methods
- PBH 360 Field Epidemiology
- COM 350 Qualitative Research Methods
- PBH 310 Medical Anthropology
- SOC 325 Medical Sociology
- PBH 320 Geography of Health

*Health Care Systems Selective*

- COM 320 Patient-Provider Communication
- ECN 317 Health Economics
- HIS 330 History of Public Health and Medicine
- SOC 325 Medical Sociology
- COM 318 Health Teamwork
- PHI 360 MBSR for Health

*Critical Reflection in Health Selective*

- PSY 440 Death and Dying
- SOC 325 Medical Sociology
- HIS 330 History of Public Health and Medicine
- SOC 330 Culture of Disability
- PHI 350 Nature and Wellness
- ETH 315 Health, Disease, and Authority or permission of program director

*Humanities Methods and Approaches Selective*

- ART 105 Introduction to Drawing
- HIS 141 Modern American History
- LIT 2XX African Literature, Film, and Music
- PHI 250 Religion as the Search for Meaning

*Science and Health Through Humanities Lenses Selective*

- HUM 220 Medical Humanities
- LIT 220 Suicide and/as Literature: East-West
- PHI 280 The Philosophy and Practice of Yoga

## Doctor of Pharmacy Fall Start Date Curricular Grid

Note that students must complete the following elective credits by graduation. These can be completed during pre-pharmacy or prior to coming to ACPHS and will appear in the degree audit.

- Liberal arts 9 credits (typically social science and humanities topics)
- General education elective 3 credits (any non-required course)
- Professional elective 6 credits (courses designated by the Pharmacy Curriculum Committee)

| **P1 Fall Semester (P1S1)** | | | **P1 Spring Semester (P1S2)** | | |
|---|---|---|---|---|---|
| Course # Course Name | | Credits | Course # Course Name | | Credits |
| PSC341/<br>PSC641 | Pharmaceutics I/<br>Advanced Pharmaceutics I | 3 | PSC342/<br>PSC642 | Pharmaceutics II/<br>Advanced Pharmaceutics II | 3 |
| PSC321 | Physiology/<br>Pathophysiology 1 | 4 | PSC322 | Physiology/<br>Pathophysiology 2 | 4 |
| PSC311 | Biochemistry | 3 | PSC312 | Molecular Biology | 3 |
| | | | PHM5XX* | Intro to Pharmacotherapy/Self-Care | 3 |
| PHM510 | Foundations of Pharmacy | 2 | PHM585 | APhA Immunization Certificate | |
| PSL511 | Pharmacy Skills I | 2 | PSL332 | Pharmacy Skills 2 | 2 |
| PSC369/<br>PSC569 | Molecular Foundations of<br>Drug Action I | 3 | PSC371/<br>PSC571G | Pharmacology I | 3 |
| | TOTAL CREDITS | 17 | | TOTAL CREDITS | 18 |

# Pharm.D. Fall Start Date Curricular Grid

| Professional Year 1 Summer | | |
|---|---|---|
| Summer Semester | | Credits |
| CLK798 | Community | 4 |
| | TOTAL | 4 |

| P2 Fall Semester (P2S1) | | Credits | P2 Spring Semester (P2S2) | | Credits |
|---|---|---|---|---|---|
| PSC441 | Pharmacokinetics | 3 | PTP5XX* | Endocrine/GI/nutrition Pharmacotherapy | 3 |
| PTP521 | Cardiovascular Pulmonary<br><br>Pharmacotherapy | 4 | PSC 315 | Immunology | 3 |
| PSC372/ PSC572G | Pharmacology II | 3 | PTP5XX* | Infectious Diseases Pharmacotherapy | 3 |
| PCW521 | Patient Care Workshop | 1 | PCW5XX* | Patient Care Workshop 2 | 1 |
| PHD525 | Drug Information & Scientific Lit. Eval | 3 | ETH510 | Health Care &<br><br>Human Values | 3 |
| PSL521 | Pharmacy Skills 3 | 2 | PSL432 | Pharmacy Skills 4 | 2 |
| | Professional Elective* | 3 | | Professional elective* | 3 |
| | TOTAL | 16-19 | | TOTAL | 15-18 |

# Pharm.D. Fall Start Date Curricular Grid

| Professional year 2 Summer | | |
|---|---|---|
| Summer Semester | | Credits |
| CLK807 | Institutional | 3 |
| CLK803 | Team Based Care | 1 |
| | TOTAL | 4 |

| **P3 Fall Semester (P3S1)** | | **Credits** | **P3 Spring Semester (P3S2)** | | **Credits** |
|---|---|---|---|---|---|
| PHM911 | Orientation to APPE | NC | PTP515 | Rheumatology/Oncology Pharmacotherapy | 3 |
| PTP549 | Neurology/Psychology Pharmacotherapy | 4 | PAD511 | Jurisprudence (NY & Federal) | 3 |
| PTP528 | Genitourinary Pharmacotherapy | 2 | | | |
| PTP525 | Nephrology/Toxicology Pharmacotherapy | 2 | PSC370 | Pharmacogenomics | 2 |
| PCW531 | Patient Care Workshop 3 | 1 | PCW5XX* | Patient Care Workshop 4 | 2 |
| PAD515 | Pharmacoeconomics and Health Policy | 4 | PAD5XX* | Pharmacy Administration and Healthcare Systems | 4 |
| PSL531 | Pharmacy Skills 5 | 2 | PSL532 | Pharmacy Skills 6 | 1 |
| | Professional elective* | 3 | | Professional elective* | 3 |
| | | | | | |
| | TOTAL | 15-18 | | TOTAL | 15-18 |

## Pharm.D. Fall Start Date Curricular Grid

| Advanced Pharmacy Practice Experiences - Summer, Fall and Spring Semesters | | |
|---|---|---|
| CLK8929 | Community Core Rotation | 6 |
| CLK843 or 930 | Institutional Core Rotation | 6 |
| CLK812 or 999 | Inpatient Core Rotation | 6 |
| CLK812 or 999 | Ambulatory Core Rotation | 6 |
| | Flexible Core Rotation | 6 |
| | Elective | 6 |
| | Elective | 6 |
| | TOTAL | 42 |

## MASTER'S DEGREE IN BIOMEDICAL SCIENCES (In-person/on campus)

**One Year Post Bac Program (In-person, on-campus program)**

| **Year 1** | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | **Spring Semester** | | **Credits** |
| BIO 625 | Advanced Molecular Biology | 3 | BIO 630 | Advanced Cell Biology | 3 |
| MAT 610 | Statistical Inference and Modeling | 3 | | Bioselective* | 3 |
| BIO 610 | Immunology | 3 | HOI 645 | Epidemiology | 3 |
| BIO 660 | Journal Club | 1 | BIO 660 | Journal Club | 1 |
| HIS 530 | History of Public Health and Disease | 3 | PSC 500 | Clinical Biochemistry | 3 |
| | Bioselective* | 3 | ETH 500 | Healthcare and Human Values/ Clinical Ethics | 3 |
| PPP 670 | Prep for Health Professions I | 1 | PPP 680 | Prep for Health Professions II | 1 |
| | **Total** | **17** | | **Total** | **17** |

| **Summer Semester** | | **Credits** |
|---|---|---|
| BIO 665 | Capstone Thesis | 3 |
| | | |
| | | |
| | | |
| | | |
| | **Total** | **3** |

**TOTAL: 37 credits**

*Bioselective Course- Students must select one course from the following courses:

- BIO 680 Bacterial Pathogenesis (Sp)
- BIO 690 Viral Pathogenesis (Fa)
- BIO 663 Medical Mycology and Parasitology (Sp)
- CLS 612 Clinical Microbiology l (Fa)
- CLS 622 Clinical Microbiology ll (Sp)
- BIO 615 Public Health Microbiology (Fa)

## MASTER'S DEGREE IN BIOMEDICAL SCIENCES (Online)

**One Year Post Bac Program (ONLINE program)**

| **Year 1** | | | | | | |
|---|---|---|---|---|---|---|
| **Fall Semester** | | **Credits** | | **Spring Semester** | | **Credits** |
| BIO 625 | Advanced Molecular Biology | 3 | | BIO 630 | Advanced Cell Biology | 3 |
| MAT 610 | Statistical Inference and Modeling | 3 | | BIO 663 | Medical Mycology and Parasitology | 3 |
| BIO 610 | Immunology | 3 | | HOI 645 | Epidemiology | 3 |
| BIO 660 | Journal Club | 1 | | BIO 660 | Journal Club | 1 |
| HIS 530 | History of Public Health and Disease | 3 | | PSC 500 | Clinical Biochemistry | 3 |
| BIO 615 | Public Health Microbiology | 3 | | ETH 500 | Healthcare and Human Values/ Clinical Ethics | 3 |
| PPP 670 | Prep for Health Professions I | 1 | | PPP 680 | Prep for Health Professions II | 1 |
| | **Total** | **17** | | | **Total** | **17** |

| **Summer Semester** | | **Credits** |
|---|---|---|
| BIO 665 | Capstone Thesis | 3 |
| | | |
| | | |
| | | |
| | | |
| | **Total** | **3** |

**TOTAL: 37 credits**

Admissions Requirements for both MSBS programs (in-person and online)- Completion of appropriate prerequisite courses:

- General Biology I & II (lecture + lab) – 8 credits
- General Chemistry I & II (lecture + lab) – 8 credits
- Organic Chemistry I & II (lecture + lab) – 8 credits
- Biochemistry (lecture) – 3 credits
- Microbiology (lecture) – 3 credits
- Statistics – 3 credits
- Additional Pre-med requirements:
  - Physics (lecture + lab) – 8 credits
  - Behavioral Science – 3 credits
  - Calculus I – 3 credits (recommended)
  - English/Literature – 3 credits (recommended)

# MASTER'S DEGREE IN BIOMANUFACTURING AND BIOPROCESSING

The Master of Biomanufacturing and Bioprocessing (MBB) at ACPHS is offered by the Departments of Life Sciences and Pharmaceutical Sciences in collaboration with CBET (Stack Family Center for Biopharmaceutical Education and Training). MBB offers two tracks: a full-time track for full-time students, and a part-time track for working professionals. In addition, the flexibility of the program enables you to pursue dual degree programs (e.g., Doctor of Pharmacy).

MBB is a one-year accelerated program with over 150+ hours of hand-on laboratory learning and courses that lay the foundations for understanding the science and regulatory landscape of biotech industry. The program culminates with a biopharmaceutical project (research-focused, review paper and industrial-experience track) allowing a customizable personalized education experience.

## MBB IS DESIGNED TO LAY THE FOUNDATION FOR CAREERS IN BIOTECH INDUSTRY

Biomanufacturing is the science and technology to use (engineered) living cells to create value products like medicine, biofuels, and even sustainable materials. Medicines that are made using cells are also known as biologics and include, vaccines, antibodies, enzymes, and cell and gene therapies

The MBB program is designed to lay the foundation for careers in biotech industry. The program emphasizes on understanding cell and molecular biology, how medicines are discovered, (bio)manufactured, and regulated and has 150+ hours of hands-on training on laboratory techniques that match industry standards equipment and techniques.

# MASTER OF BIOMANUFACTURING AND BIOPROCESSING

*START DATE: FALL AND SPRING*

- Any 9 credits can be double-dipped
- **Required Courses:** Students must earn a grade of B or better in all required graduate courses. If less than a B is earned, the course must be remediated.
- **Elective Courses:** Students are permitted only one grade in the range of B- to C- in elective courses. If less than a C- is earned, the student must remediate the elective course or take a different elective
- *Italicized: Lab-intensive courses*

| Fall | | | | Spring | | |
|---|---|---|---|---|---|---|
| **Code** | **Course Name** | **Credits** | | **Code** | **Course Name** | **Credits** |
| *BIO655* | *Biopharmaceutical Microbiology* | *3* | | *PSC620* | *Downstream Processing of Biopharmaceuticals* | *3* |
| *BIO631* | *Mammalian Cell Culture* | *3* | | *BIO648* | *Microbial Fermentation* | *3* |
| PSC610 | Technical Writing for Biopharmaceutical Industry | 2 | | PSC625 | Clinical Biochemistry | 3 |
| MAT610 | Statistical Inference and Modeling | 3 | | PSC646 | Regulatory Science | 3 |
| ETH610 | Ethics in Research | 1 | | | Elective* | 3 |
| | Elective* | 3 | | | | |
| **Total Term Credits** | | **15** | | **Total Term Credits** | | **15** |

| Summer Session | | | | |
|---|---|---|---|---|
| **Code** | **Course Name** | **Credits** | | **Elective Examples:**<br>• BIO610-Immunology<br>• PSC624- Industrial Pharmaceutical & Biopharmaceutical Entrepreneurship<br>• BIO625-Advanced Molecular Biology<br>• PSC652-Using Animal Models for Therapeutic Drug Discovery<br>• BIO630-Advanced Cell Biology<br>• BIO635-Cell Death & Disease<br>• BIO680-Bacterial Pathogenesis<br>• BIO690-Viral Pathogenesis<br>• BHS750-Flow Cytometry |
| BIO675 | Capstone | 3 | | |
| | Experiential Learning | 0 | | |
| **Total Term Credits** | | **3** | | |

# HANDS-ON TRAINING IN THE MBB MASTER'S PROGRAM

The MBB program culminates with Biopharmaceutical capstone projects, offering students the opportunity to apply their classroom and laboratory learning into real-world practice. There are three options for biopharmaceutical capstones. The program culminates with a biopharmaceutical project (research-focused, review paper and industrial-experience track) allowing a customizable personalized education experience.

### Examples of Research-focused Capstones:

1. Refining Affinity Chromatography of Hybridoma-derived Anti-IgM Monoclonal IgG Antibodies – Joel Goetz (ACPHS Faculty Mentor: Payel Datta)
2. Exploring Human Cytochrome P450 2C8 and 2C9: Genetic Polymorphisms, Drug-Drug Interactions, and Clinical Implications) - Aezat Ullah (ACPHS Faculty Mentor: Dr. Manish Shah)
3. Benefits and Limitations of IBM Robotic Process Automation (RPA): A Use Case for Text Recognition - Nivedita Sivakumar, Industry-Experience

### Examples of Review-Style Capstones:

1. Interchangeable Biologics: Pharmacy Level Substitution - Vidisha Amin (ACPHS Faculty Mentors: Dr. Payel Datta and Dr. Haian Zheng)
2. Methods to Establish an Efficient Workflow to Produce Antibody-Drug Conjugate (ADC) - Bereket Estifanos – (ACPHS Faculty Mentors: Dr. Payel Datta)
3. Review of Molecular Mechanisms of Monoclonal Antibodies for Cancer Treatment - Carmen Nazario (ACPHS Faculty Mentors: Dr. Payel Datta and Dr. Kideok Jin)

### Examples of Industry-Experience Capstones:

1. Quality Assurance Validation for Curial Global – Mariam Gawdat, Curia
2. Influenza Assay Development at Pfizer Vaccine R&D – Nicholas Labbe
3. Benefits and Limitations of IBM Robotic Process Automation (RPA): A Use Case for Text Recognition - Nivedita Sivakumar, IBM
4. Quality Assurance for Biopharmaceuticals: An overview of regulations and methods – Hany Elfar , Curia

# MS in Cytotechnology and Molecular Cytology 2024-2025 Curriculum Grid

| YEAR 1 FALL | | | | YEAR 1 SPRING | | |
|---|---|---|---|---|---|---|
| **Code** | **Course Name** | **Credits** | | **Code** | **Course Name** | **Credits** |
| | | | | | | |
| CYT 610 | Cytopathology of the Female Genital Tract | 4 | | CYT 630 | Exfoliative Non-Gynecologic Cytopathology II | 2 |
| CYT 620 | Exfoliative Non-Gynecologic Cytopathology I | 2 | | CYT 650 | Cytopreparatory Techniques II | 1 |
| CYT 640 | Cytopreparatory Techniques I | 1 | | CYT 660 | Fine Needle Aspiration Cytology I | 3 |
| BHS 610 | Cellular Pathophysiology and Histology I | 3 | | BHS 620 | Cellular Pathophysiology and Histology II | 3 |
| BHS730 | Advanced Good Laboratory Practices/Lab Management | 3 | | BHS 740 | Genetics and Molecular Basis of Disease | 3 |
| BHS 745 | Molecular Diagnostics with Lab | 4 | | BHS 765 | Grand Rounds in Pathology | 1 |
| PSC 672 | Experimental Design and Data Analysis | 2 | | BIO 650 | Research Design | 2 |
| | | | | ETH 610 | Ethics in Research | 1 |
| **Total Credits** | | 19 | | **Total Credits** | | 16 |
| **SUMMER SESSION 1** | | | | **SUMMER SESSION 2** | | |
| CYT 670 | Fine Needle Aspiration Cytology II | 3 | | CYT 770 | Clinical Practicum I | 3 |
| BHS 750 | Flow Cytometry | 3 | | BHS 760 | Advanced Topics in Biotechnology-Fine Needle Aspiration Portfolio | 3 |
| BHS 755 | In Situ Hybridization-Principles, Protocols and Applications | 2 | | | | |
| **Total Credits** | | 8 | | **Total Credits** | | 6 |

| YEAR 2 FALL | | |
|---|---|---|
| **Code** | **Course Name** | **Credits** |
| CYT 780 | Clinical Practicum II | 6 |
| BHS 790 | Capstone Project | 3 |
| **Total Credits** | | 9 |

## EXPERIENTIAL EDUCATION

### The Introductory Pharmacy Practice Experiences (IPPE)

The IPPEs are designed for pharmacy students in their first three professional years (P1 - P3) of the PharmD program. Students gain 320 hours of "hands-on" practice experience applying knowledge obtained in the classroom and laboratory portions of the program. The purpose of IPPEs is to provide the student with exposure to various pharmacy practice environments for the student to begin developing skills toward making independent judgments and integrating fundamental knowledge into clinical applications, as well as prepare students for their Advanced Pharmacy Practice Experiences (APPEs). Students will engage in community pharmacy and institutional pharmacy practice environments in addition to joining a team of health care providers (team based care) for additional practice exposure.

### The Advanced Pharmacy Practice Experiences (APPEs)

The APPEs provide "hands-on" patient-centered collaborative practice experiences designed to build upon the skills, attitudes, abilities, and behaviors developed in the pre-APPE Pharm.D. curriculum (didactic, skills laboratory, and introductory pharmacy practice experiences). APPEs provide the student a wide exposure to various pharmacy practice environments and enable the student to further develop skills in making independent judgments and integrating fundamental knowledge into clinical applications, and to function as an integral member of an interprofessional collaborative patient care team. APPEs span a 12-month period (May through May) in the P4 (fourth professional) year and are subdivided into 6-week modules, with each week of APPE counted as 1 academic credit. Each student is required to complete 42 credits/7 Modules of APPEs (1680 hours).

### What Makes ACPHS' Experiential Education Special?

Our IPPEs are not simulated— they are live, in-person experiences. Learn more at https://www.acphs.edu/experiential-education.

## LIBRARY SERVICES

The Library provides high quality resources, services and educational experiences to meet students' information needs. Professional librarians are available to provide one-on-one research assistance to online students via phone, email and instant messaging.

Visit https://libraryservices.acphs.edu/home
Email: library@acphs.edu

## RESEARCH OVERVIEW

Research is a core component of the academic life at ACPHS. Faculty and students at the College are involved in a wide range of research projects, with special concentrations in infectious disease, oncology, hematology, and nephrology. In addition to laboratory-based research, faculty members are also exploring different health care related issues such as patient-provider communications, medication adherence, and the evaluation of outcomes data. The annual ACPHS Research Symposium serves as both a showcase for this work and a vehicle for facilitating inter-disciplinary collaborations. A look at the most recent Symposium agenda and abstracts offers a useful guide to understanding the variety of research now taking place at the College. For a more complete overview of recent faculty research, please review the latest report of faculty scholarly activity.

## RESEARCH OPPORTUNITIES FOR STUDENTS

One of the benefits of attending ACPHS is that all of our academic programs are centered around human health. So if you are a student interested in a specific field of health research, there's a good chance that a faculty member here is studying that subject. The College also offers specific programs and activities designed to encourage student research. Examples include our longstanding Student Research Awards program and the Research Symposium, an annual showcase for student and faculty research projects. Another advantage available to you as an ACPHS student is the ability to leverage the College's relationships with the pharmaceutical industry to pursue a research-based rotation or internship. Pharmaceutical companies where ACPHS has placed students include AstraZeneca, Boehringer Ingelheim, Bristol-Myers Squibb, Johnson & Johnson, Novartis, Pfizer, and Sanofi Genzyme. There are also several student-led clubs and organizations that host guest speakers or lead group activities for those interested in gaining additional exposure to research.

## INTRAMURAL GRANT PROGRAMS

ACPHS works to facilitate research activity and assist young investigators in a variety of ways. Two of those include:

SCHOLARSHIP OF DISCOVERY INTRAMURAL RESEARCH GRANT PROGRAM
This intramural grant program helps support scholarly activity that increases the body of knowledge within an investigator's discipline. This includes, but is not limited to scientific, clinical, historical, cultural, and literary pursuits. The goal of the Program is to promote research leading to competitive extramural grant applications, peer-reviewed presentations, and peer-reviewed publications.

THE RUDOLPH & DOROTHY BLYTHE RESEARCH AWARD
The Rudolph and Dorothy Blythe Research Award provides support to investigations of challenging research questions requiring an innovative, multidisciplinary, team-based approach. The program is aimed at engaging teams composed of faculty investigators from diverse academic fields, including social, basic, clinical and applied disciplines, and students across ACPHS academic programs.

## STUDENT RESEARCH AWARD PROGRAM

The aims of the SRAP program are to promote student engagement in research and scholarly activities, to encourage mentoring relationships between students and faculty in a research or scholarly environment, and to provide students with the opportunity to gain practical research skills and experience. Applications may focus on a discrete research project or be part of an ongoing faculty research project. The program is open to all eligible ACPHS BS (including B4/G1 dual degree) students and PharmD students interested in pursuing laboratory, clinical, or other research projects and scholarly activities under the guidance of a faculty mentor. *The research experience may occur over the course of the summer or throughout the 2024-2025 academic year).*The Program provides research awards to students plus supplies funding to offset the cost of the student's research supplies.

## RESEARCH COMPLIANCE

The Office of Research and Sponsored Programs provides access to a variety of resources and training programs to ensure all individuals engaged in research at the College adhere to the highest standards for responsible and ethical conduct.

# UNDERGRADUATE ADMISSIONS

## IMPORTANT DEADLINES FOR FRESHMAN APPLICANTS

**NOVEMBER 1**
Early Decision I Application Deadline
Free Application for Federal Student Aid (FAFSA) Deadline (Early Decision Applicants)

**DECEMBER 1**
Early Action Application Deadline
Free Application for Federal Student Aid (FAFSA) Deadline (Early Action Applicants)

**FEBRUARY 1**
Regular Decision Priority Deadline
Free Application for Federal Student Aid (FAFSA) Deadline *(Regular Decisions Applicants)*
Deposit and Enrollment Confirmation Deadline *(Early Decision applicants)*

**MAY 1**
Deposit and Enrollment Confirmation (Early Action and Regular Decision applicants)

## EARLY DECISION

The Office of Undergraduate Admissions encourages qualified candidates who have selected ACPHS as their first choice to apply under the Early Decision program. Review of Early Decision Applications will be prioritized, and these applicants will receive their admissions and scholarship decisions earlier than other applicants. Early Decision is a binding agreement, and those admitted are required to submit an enrollment confirmation and non-refundable tuition deposit by February 1. **EARLY ACTION AND REGULAR DECISION**

To ensure full consideration and a place in the incoming class, we highly recommend that the completed application be submitted by December 1 (for non-binding Early Action) or by February 1 (for Regular Decision). Students applying for a joint-degree program should apply no later than November 1. The College will continue to review applications after the priority deadline as long as space remains available.

## INSTRUCTIONS FOR EARLY DECISION, EARLY ACTION, AND REGULAR DECISION

An application for freshmen admission is reviewed when the file is complete. Students may apply by submitting the Common Application online at www.commonapp.org. The following materials also must be sent to the Office of Admissions:

- Official high school transcript(s) from all secondary schools attended, including the most recent grades.
- Official transcripts from any colleges or universities attended (for current high school students this necessary for enrollment; not at time of application)
- Official reports of standardized test scores, either Scholastic Aptitude Test (SAT) or American College Testing Program Examination (ACT). Note that due to the impacts of COVID-19, standardized tests are not required through the 2023-2024 application year.
- Official reports from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS), if the applicant has studied for fewer than four years where English is the language of instruction. A minimum score of 84 on the TOEFL or a minimum of 6.5 on the IELTS must be achieved to be considered for admission.

One (1) letter of recommendation from a school official, such as a counselor or a teacher, is required. An additional recommendation from a science or math teacher or from an individual that knows the candidate well is preferred. **Transcripts**

Transcripts must clearly indicate all credits and grades received and indicate coursework currently in progress. All transcripts must be official. If mailed, they must be presented in a sealed envelope with the institution's stamp or an official's signature across the closure. Photocopies and hand-carried documents not in a sealed, stamped envelope are not accepted.

For international applicants, a completed Foreign Credentials Evaluation from World Education Services (WES) or ECE course by course evaluation may be required. Freshmen applicants, unless providing a transcript in English from a well-known English language or international school, should complete a document-by-document Report. Any student with completed college/university/post secondary coursework must submit a course-by-course Report.

All deposited students are expected to submit a final high school transcript by the first day of classes. Failure to meet this requirement may result in forfeiture of the offer of admission.

**Standardized Tests**

ACPHS is a test-optional school. Freshmen applicants may choose to submit official reports of standardized test scores; if test scores are submitted, they will be considered during the holistic review of the application.

- The SAT code for the College is 2013. The ACT code is 2672. If both SAT and ACT scores are submitted, the higher score will be considered.

Applicants must be at least 16 years old. The course of study must have included the following college preparatory coursework:

- English, 4 years 4 units
- Mathematics, 4 years/4 units. Coursework must include logarithms and exponentials. Coursework may include precalculus, statistics, business math, finance, an extended course sequence of algebra/geometry/trigonometry, or other math electives taken during a student's senior year.
- Mathematics, 4 years (including pre-calculus, for select programs) 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 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 Office of Admissions will investigate to confirm the school is recognized by the state department of education or home school association. The Office of 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 Aid will reach out to the Office of Admissions for follow-up.

Applicants will be asked to select a degree program or "undecided" when *applying*. If enrolling, undecided applicants must select a degree program by matriculation. 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 $200, 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 waitlist 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.

**TRANSFER CREDIT FOR 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 five or higher. 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. Students who wish to receive credit for AP, CLEP, IB, or prior college coursework must make their request to the College, as well as provide all supporting documentation no later than August 1 of their start year for students beginning in the fall semester, or January 15 for students beginning in the spring semester. The granting of additional credits will not be considered after this date. All decisions regarding transferring of credit are final at the point of matriculation.

**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.

**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 to 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 98 percent of current students have received some assistance.

**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 https://studentaid.gov/h/apply-for-aid/fafsa as early as October 1. 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 the admissions application deadline 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 at https://studentaid.ed.gov/sa/fafsa.

**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. Students with a prior Bachelors or BS can receive graduate aid in the first professional year of the Pharmacy program. If you are enrolled in the BSPK and the PHMD program and do not have a prior BA or BS, you will receive undergraduate aid until the third and fourth professional year of the Doctor of Pharmacy program. Therefore, student eligibility for federal and state scholarships, grants, and loans will be determined for all Doctor of Pharmacy students using this framework.

**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
- Allowance for Housing and Meals expenses while attending school
- Allowance for books and supplies
- Allowance for transportation
- Allowance for a laptop (students new to ACPHS)
- Allowance for personal expenses (shampoo, toothpaste, laundry expense, etc.)
- Allowance for loan fees for federal student loans (if applicable)
- Allowance for dependent-care costs (if applicable)
- Allowance for costs related to a disability (if applicable)

The student's **Student Aid Index (SAI)** appears on the *Institutional Student Information Record* (ISIR).The SAI is used to determine whether a student is eligible for federal student aid. The SAI 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 – SAI = 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 records selected for verification review by the federal processor, as well as those selected by the College. Students selected for verification must submit documentation to support certain information reported on the FAFSA. Students selected for verification must submit the following: copies of student, spouse, and/or parent(s) previous year's signed IRS Tax Return Transcripts or complete the FTI process, all applicable W-2 forms, and a federal verification worksheet. These items are due 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.

**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 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 each academic year. Beginning in the 2011-2012 academic 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 each academic year. In addition, the Higher Education Act requires that all students, at the end of their second academic year, have a cumulative GPA of at least a "C" or have an academic standing consistent with their program's graduation requirements.

**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)** |
|---|---|---|---|---|
| 1st Year | 17 | 18 | 35 | 35 hours x 50% = 18 credit hours |
| 2nd Year | 18 | 17 | 70 | 70 hours x 67% = 47 credit hours |
| 3rd Year | 16 | 18 | 104 | 104 hours x 67% = 70 credit hours |
| 4th Year | 18 | 17 | 139 | 139 hours x 67% = 93 credit hours |
| 5th Year | 18 | 18 | 175 | 175 hours x 85% = 149 credit hours |
| 6th 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)** |
|---|---|---|---|---|
| 1st Year | 9 | 9 | 18 | 18 hours x 67% = 12 credit hours |
| 2nd 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)** |
|---|---|---|---|---|
| 1st Year | 16 | 17 | 33 | 33 hours x 67% = 22 credit hours |
| 2nd Year | 16 | 17 | 66 | 66 hours x 67% = 44 credit hours |

| | | | | |
|---|---|---|---|---|
| 3rd Year | 15 | 19 | 100 | 100 hours x 67% = 67 credit hours |
| 4th 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. For repeated courses, neither repeated grades nor original grades of that same course 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.

**PROCESS FOR PASS/FAIL COURSES, INCOMPLETES, WITHDRAWALS, REPETITIONS, AND TRANSFER OF CREDIT**

For the 2023-2024 year, courses with grades of P in Pass/Fail courses will be counted in the quantitative standard only. Course incompletes and withdrawals are counted in the quantitative standard only. Repeated courses will be counted in the quantitative standard only. Transfer credits will be counted in the quantitative standard only. 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, such as injury, illness, the death of a relative, or other special circumstances, which caused a major disruption to their ability to successfully complete their course work may appeal to 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 one* qualified person (other than family and friends) 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 a 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 June 12. 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 appealed 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.

**ACADEMIC PLAN**

If the Financial Aid Appeals Committee determines, based on the student's appeal, that it will take more than one payment period for the student to meet progress standards, a status of probation will be assigned, and an academic plan will be developed. Students in this status will have their progress reviewed at the end of one payment period to determine if the student is meeting the requirements of the academic plan. If the academic plan is being followed, the student will regain Federal Student Aid eligibility as long as they continue to meet the requirements set forth in the academic plan. Students may appeal to change their academic plan by explaining what has happened to make the change necessary and how they will continue to make SAP.

**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**

Students 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 educational 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.

## SPECIAL CONSIDERATIONS

**CONSORTIUM AGREEMENT POLICY WITH OTHER INSTITUTIONS**

The Office of Financial Aid adheres to the External Cross Registration Policy, which includes a voluntary consortium of the public and independent colleges within the Capital Region, 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.

**STUDENT LOANS**

Private student loans are certified for one academic year. Funds are disbursed in two installments, one each for the fall and spring semesters during the loan period. Students will be advised of the disbursement amounts through the online financial aid system.

**SUMMER SESSIONS AND/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 2024-25 FAFSA for financial aid during the summer 2024 semester.
- 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 2024-25 year. Module J will be used for make-up rotations only. Fall 2024 semester includes modules A – E; spring 2035 semester includes modules F – I. Student aid for the spring 2024 semester will be disbursed after the mid-point of the loan period. (See Calendars at the beginning of the Catalog for more details).

- Private student loans for summer students are certified for one academic 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 full-time during the summer semester. Students will be advised of the disbursement amounts through the online financial aid system.

**FINANCIAL AID WAITLIST PROCESS**

The Office of Financial Aid uses a waitlist process to award funds should any become available due to student attrition. Students may request to be placed on the waitlist by submitting the Financial Aid Waitlist Application to the Office of Financial Aid on or after August 1. This application is available through the online financial aid system. Waitlist 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.

***Updated July 2024***

## INSTITUTIONAL AID

ACPHS offers institutional scholarships and grants based upon established criteria of merit and/or need 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. 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 the required corrections or verification of data reported on the student's federal ISIR. The Office of Financial Aid will evaluate eligibility annually based upon the issuance of final grades for the 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.

Academic Achievement Scholarships, Academic Excellence Awards, Academic Distinction Scholarship, Panther Pride Awards, Presidential Scholarships, Dean's Scholarships, ACPHS Merit Scholarships, Trustee Scholarships, and Trustee Grants will be renewed for a maximum of 11 semesters for students pursuing the Doctor of Pharmacy degree. Academic Distinction Scholarships, Trustee Scholarships, Trustee Grants, Pharmaceutical Sciences Scholars Awards, Biomedical Technology Scholars Awards, Health and Human Sciences Scholars Awards, Microbiology Scholars Awards, Clinical Laboratory 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.

ACPHS scholarships may have a minimum cumulative GPA requirement for renewal. The Office of Financial Aid will review student cumulative GPAs at the end of each term. Students not meeting the cumulative GPA requirement for their scholarship are at risk of losing their scholarship for the proceeding term. Warning terms can be granted if students are within 0.20 of the GPA requirements. Students who have already received a warning or are more than 0.20 away from the GPA requirement are at risk of losing the full amount of their scholarship for the next full-time semester. Students will have the ability to appeal the loss of their scholarship.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES ACADEMIC ACHIEVEMENT AWARD**

ACPHS offers tuition scholarships to qualified entering freshmen upon admission to the College based upon superior academic achievement in high school. The Academic Excellence Award is renewed each year provided the student maintains a cumulative overall GPA of 2.5 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 ACADEMIC EXCELLENCE AWARD**

ACPHS offers tuition scholarships to qualified entering freshmen upon admission to the College based upon superior academic achievement in high school. The Academic Excellence Award is renewed each year provided the student maintains a cumulative overall GPA of 2.5 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 PANTHER PRIDE AWARD**
ACPHS offers limited scholarships to qualified entering freshmen based on FAFSA results and academic performance. The Panther Pride Award is renewed each year provided the student maintains a cumulative overall GPA of 2.5 or better. Students must submit the FAFSA each year to determine eligibility for this grant.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES VALEDICTORIAN SCHOLARSHIP**
ACPHS offers a one-time, non-renewable tuition scholarships to qualified entering freshmen upon admission to the College who were ranked first in their class by their high school. 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 SALUTATORIAN SCHOLARSHIP**
ACPHS offers a one-time, non-renewable tuition scholarships to qualified entering freshmen upon admission to the College who were ranked second in their class by their high school. 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 ASCEND AWARD**
ACPHS offered new undergraduate and professional students enrolling for the 2021-22 year an award to celebrate hard-working students and their ongoing academic success.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES NEW VISIONS SCHOLARSHIP**
ACPHS offers tuition scholarships to qualified entering freshmen upon admission to the College and based upon completion of the New Visions Program, offered through the Board of Cooperative Educational Services of New York State. The New Visions Scholarship is renewable for up to three years provided the student maintains an overall cumulative GPA of 2.7 or better. Recipients are also encouraged to submit the FAFSA to determine eligibility for other sources of financial aid.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES PROJECT LEAD THE WAY SCHOLARSHIP**
ACPHS offers tuition scholarships to qualified entering freshmen upon admission to the College and based upon participation in Project Lead the Way coursework in high school. This scholarship is renewable for up to three years provided the student maintains an overall cumulative GPA of 2.7 or better. Recipients are also encouraged to submit the FAFSA to determine eligibility for other sources of financial aid.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES HEALTH CARE EXPOSURE SCHOLARSHIP**
ACPHS offers tuition scholarships to qualified entering freshmen upon admission to the College and based upon completion of a high school health science program, such as an Area Health Education Center program, who are nominated for the scholarship by the Office of Admissions. The Health Care Exposure Scholarship is renewable for up to three years provided the student maintains an overall cumulative GPA of 2.7 or better. Recipients are also encouraged to submit the FAFSA to determine eligibility for other sources of financial aid.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES SPECIAL RECOGNITION SCHOLARSHIP FOR UNDERGRADUATE TRANSFER STUDENTS**

ACPHS offered tuition scholarships to qualified entering undergraduate transfer students upon admission to the College based upon honorable academic achievement. The Special Recognition Scholarship is renewed each year provided the student maintains an overall cumulative GPA of 2.5 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 PHI THETA KAPPA SCHOLARSHIP**

ACPHS offers this merit scholarship to qualified transfer students upon verification of membership in the Phi Theta Kappa organization. Students must maintain a 3.0 overall cumulative GPA for the continued renewal of this award.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES LEGACY SCHOLARSHIPS**

ACPHS offers limited scholarships to qualified students who have immediate family members currently attending or who are graduates of the College.

**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.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES PRESIDENTIAL SCHOLARSHIP**

Prior to the 2019-20 year, ACPHS offered 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**

Prior to the 2019-20 year, ACPHS offered 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 MERIT SCHOLARSHIP**

Prior to the 2019-20 year, ACPHS offered tuition scholarships to qualified entering freshmen upon admission to the College based upon honorable academic achievement in high school. The Merit Scholarship is renewed each year provided the student maintains an overall cumulative GPA of 2.5 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 MERIT SCHOLARSHIP**

Prior to the 2019-20 year, ACPHS offered tuition scholarships to qualified entering freshmen upon admission to the College based upon honorable academic achievement in high school. The Trustee Merit Scholarship is renewed each year provided the student maintains an overall cumulative GPA of 2.5 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 SPECIAL RECOGNITION SCHOLARSHIP**

Prior to the 2019-20 year, ACPHS offered tuition scholarships to qualified entering freshmen upon admission to the College based upon honorable academic achievement in high school. The Special Recognition Scholarship is renewed each year provided the student maintains an overall cumulative GPA of 2.5 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 BIOMEDICAL TECHNOLOGY EXCEL AWARD**

Prior to the 2019-20 year, ACPHS offered tuition 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 three 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 are strongly 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 CLINICAL LABORATORY SCIENCES SCHOLARSHIP**

Prior to the 2019-20 year, ACPHS offered tuition scholarships to qualified entering freshmen upon admission to the College in the bachelor's degree program in Clinical Laboratory Sciences, who exhibit honorable academic achievement in high school. The Clinical Laboratory Sciences Scholarship is renewed for a maximum of three years, provided the student maintains a cumulative GPA of 2.5 or greater and continued enrollment in the Clinical Laboratory 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 are strongly encouraged to complete the FAFSA each year.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES HEALTH AND HUMAN SCIENCES SCHOLARSHIP**

Prior to the 2019-20 year, ACPHS offered tuition 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 three 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 are strongly encouraged to complete the FAFSA each year.

**ALBANY COLLEGE OF PHARMACY MICROBIOLOGY SCHOLARSHIP**

Prior to the 2019-20 year, ACPHS offered tuition scholarships to qualified entering freshmen upon admission to the College in the bachelor's degree program in Microbiology, who exhibit honorable academic achievement in high school. The Microbiology Scholarship is renewed for a maximum of three

years, provided the student maintains a cumulative GPA of 2.5 or greater and continued enrollment in the Microbiology program. This award will be discontinued should the student change his/her program of study. Although this scholarship is based upon academic merit, students are strongly encouraged to complete the FAFSA each year.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES PHARMACEUTICAL SCIENCES SCHOLARSHIP**
Prior to the 2019-20 year, ACPHS offered tuition 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 three years, provided the student maintains a cumulative GPA of 2.5 or greater and continued enrollment in the 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 are strongly encouraged to complete the FAFSA each year.

**ALBANY COLLEGE OF PHARMACY PUBLIC HEALTH SCHOLARSHIP**
Prior to the 2019-20 year, ACPHS offered tuition scholarships to qualified entering freshmen, upon admission to the College in the bachelor's degree program in Public Health, who exhibit honorable academic achievement in high school. The Public Health Scholarship is renewed for a maximum of three years, provided the student maintains a cumulative GPA of 2.5 or greater and continued enrollment in the Public Health program. This award will be discontinued should the student change his/her program of study. Although this scholarship is based upon academic merit, students are strongly encouraged to complete the FAFSA each year.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES TRUSTEE SCHOLARSHIP**
Prior to the 2019-20 year, ACPHS offered tuition scholarships to be awarded on the basis of established need and academic achievement to new undergraduate and professional students. Undergraduate students must maintain a 2.5overall cumulative GPA for continued renewal of the scholarship. Professional students must maintain an overall cumulative GPA of 2.5 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 TRUSTEE PHARMACY SCHOLARSHIP**
Prior to the 2019-20 year, ACPHS offered tuition scholarships to be awarded to qualifying entering freshmen on the basis of established need and academic achievement. Students must maintain a 2.5 overall cumulative GPA for continued renewal of the scholarship. In addition, students who are new to the College who enroll through the Office of Pharmacy Admissions may be awarded a scholarship on the basis of established need and academic achievement. These students need to maintain a 3.0 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 TRUSTEE SCHOLARSHIP FOR BACHELOR'S DEGREE PROGRAMS**
Prior to the 2019-20 year, 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 three years, provided the student maintains a cumulative GPA of 2.5 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 the continued renewal of the award.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES TRUSTEE GRANT**

Prior to the 2019-20 year, ACPHS offered tuition scholarships on the basis of established need and academic achievement. Students must maintain standards of academic progress and required GPA for continued renewal of the grant. Students must submit the FAFSA each year to determine eligibility for this grant.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES ACADEMIC DISTINCTION SCHOLARSHIP**

ACPHS offers tuition scholarships to qualified entering freshmen upon admission to the College based upon superior academic achievement in high school. The Academic Excellence Award is renewed each year provided the student maintains a cumulative overall GPA of 2.5 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.

***Updated July 2024***

# FEDERAL GRANTS & LOANS

## FEDERAL GRANTS

### FEDERAL PELL GRANTS

Students may apply for the 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 $787 to $7,395 per year based upon SAI eligibility and enrollment intensity. Students must maintain satisfactory progress toward their first undergraduate degree.

### FEDERAL SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT

Awards may range from $1,000 to $4000 per year for Pell-eligible students. Funds are limited and are awarded on a first-come, first-served basis to students with the greatest need. Students filing the FAFSA are automatically considered, based on financial need.

### 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.

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES POLICY TITLE 38**

In accordance with Title 38 US Code 3679 subsection (e) of the Veterans Benefits and Transition Act of 2018, Albany College of Pharmacy and Health Sciences will not impose a penalty on any student using veterans education benefits under Chapter 31 (Vocational Rehabilitation & Employment) or Chapter 33 (Post 9/11 GI Bill®) because of the individual's inability to meet his or her financial obligations to the institution due to the delayed disbursement of funding from the Department of Veterans Affairs (VA).

**ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES WILL NOT:**

- Prevent the student from attending or participating in the course of education during periods in which there is a delayed disbursement;
- Assess late payment fees if the financial obligation is fully funded by the Department of Veterans Affairs (VA);
- Require the student to secure alternative or additional funding for delayed disbursements;
- Deny the student access to institutional facilities and services (e.g. access to the Campus Center, grades, transcripts, and registration) available to other students who have satisfied their tuition and fee bills.

**BUREAU OF INDIAN AFFAIRS SCHOLARSHIP**

Eligibility is restricted to students with financial need who are at least one-fourth American Indian, Eskimo, or Aleut and are enrolled members of a tribe, band, or group recognized by the Bureau of Indian Affairs Office. An 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

William D. Ford Federal Direct Loans are available to students to help meet educational expenses. Federal student loan programs offer low-interest rates and, when used with discretion, provide an affordable option to meet the cost of a quality education. The College participates in the Federal Direct Loan program. Students should complete the Electronic Master Promissory Note (E-MPN) at www.studentaid.gov.

The E-MPN is a 10-year serial promissory note used for all Direct loan borrowing while attending the College. Students will complete the Direct loan E-MPN during the first year of attendance. Annual eligibility for Direct loans will be communicated through the online financial aid system. Students must accept or decline Direct loan funds through that system annually. Transfer students or students with prior loan history will be required to complete a new Direct loan E-MPN in order to borrow loans 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 apply for a loan annually. Graduate students interested in borrowing the Graduate PLUS loan will complete the PLUS E-MPN. Students and parents may complete the E-MPN forms by logging into **www.studentaid.gov**. All federal loans are certified for a full academic year (two semesters). Federal loans are disbursed in two payments, with approximately one-half of the total loan amount disbursed each semester.

**FEDERAL DIRECT SUBSIDIZED LOANS**

Subsidized loans are 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.

**FEDERAL DIRECT UNSUBSIDIZED LOANS**

Eligibility for this loan is not based upon financial need. The borrower is responsible for the interest that accrues while in school. Repayment of the loan principal begins six months after the student graduates, withdraws, or drops to less than half-time attendance. Borrowers may receive both subsidized and unsubsidized Federal Direct loans totaling up to the applicable limit if they do not qualify for the total amount permitted under the Federal Direct Loan program.

**DIRECT 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)

***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 unsubsidized
*Doctor of Pharmacy Only:* $33,000 unsubsidized

*Aggregate Loan Limits*
$57,500 (including $23,000 base subsidized and unsubsidized) for undergraduate students
$138,500 (up to $65,500 may be subsidized) for students in master's degree programs
$224,000 (up to $65,000 may be subsidized) for students in the Doctor of Pharmacy program

**Direct PLUS LOAN ANNUAL LIMITS:**

*Parent PLUS loan*
Cost of attendance minus other financial aid, per dependent student

*Graduate PLUS loan*
Cost of attendance minus other financial aid

*Aggregate Loan Limits*
None

**FEDERAL DIRECT LOAN INTEREST RATES**

Current interest rates for subsidized and unsubsidized loans are 6.53% disbursed after July 1st, 2024.

**FEDERAL DIRECT PLUS AND FEDERAL DIRECT GRADUATE PLUS LOAN INTEREST RATES**

The interest rate for Direct PLUS Loans is a fixed rate of 9.08% for those loans first disbursed on or after July 1, 2024, and 8.08% for Graduate PLUS. Interest is charged on Direct PLUS Loans during all periods, beginning on the date of your loan's first disbursement. In addition to interest, you pay a loan origination fee that is a percentage of the principal amount of each Direct PLUS Loan that you receive. This fee helps reduce the cost of making these low-interest loans. The US Department of Education will deduct the fee before you receive any loan money, so the loan net amount that you will receive will be less than the amount you have to repay. Dependent students whose parents have applied for, but were unable to obtain a PLUS Loan, are eligible to receive additional Direct Unsubsidized Loan funds.

**FEDERAL DIRECT CONSOLIDATION LOAN**

Students who wish to consolidate their federal loans may be able to combine their loans into one loan with a fixed interest rate based on the average of interest rate of the loans being combined. Visit http://www.studentaid.gov for additional information.

**FEDERAL DIRECT LOAN REPAYMENT OPTIONS**

Visit http://www.studentaid.gov for additional information on the options below.

- Standard Repayment Plan
- Graduated Repayment Plan
- Extended Repayment Plan
- Revised Pay As You Earn Repayment Plan (REPAYE)
- Pay As You Earned Plan (PAYE)
- Income Contingent Repayment Plan (ICR)
- Income-Based Repayment Plan (IBR)
- Income Sensitive Repayment Plan

Interest Rate: Weighted average

**FEDERAL HEALTH PROFESSIONS STUDENT LOAN**

The HPSL program is offered by ACPHS to Doctor of Pharmacy students in the professional years of the program demonstrating financial need through an analysis of the FAFSA. Verified Income and resources of student, spouse, and parent(s) must be considered, regardless of the dependency status of a student. The maximum is 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 an HPSL loan will complete a Master Promissory Note with the College. Funds are extremely limited.

**FEDERAL WORK STUDY**

Funded through federal and College funds. Eligibility is based upon financial need and the receipt of a valid FAFSA by the priority deadline. 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 an hourly wage 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.

*Updated July 2024*

# NEW YORK AND VERMONT STATE SCHOLARSHIPS & GRANTS

The Higher Education Services Corporation administers the New York State programs of financial assistance to undergraduate students attending our Albany Campus. 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.ny.gov**

**NEW YORK STATE TUITION ASSISTANCE PROGRAM (TAP GRANT)**

In the 2023-2024 year, NYS may provide a tuition award from $1000 to $5,665 per year. The state legislature determines the award schedules 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 2022 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. The total family income for independent undergraduate students who are married and have no other tax dependents cannot exceed $40,000. The total income for single independent undergraduate students with no tax dependents cannot exceed $10,000.

**TAP APPLICATION PROCEDURES**

The student are encouraged to 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 UNDERGRADUATE TAP CODE IS 0995.**

This TAP code should be reported during a student's undergraduate years of study.

**TAP GRANT ELIGIBILITY**

In order to receive payment under New York State financial assistance programs, students must:

- Be a United States citizen or eligible noncitizen and a resident of New York State for the past 12 months
- Have graduated from high school in the United States, or earned a high school equivalency diploma
- Study full-time undergraduate (at least 12 credits per semester) at an approved postsecondary institution in New York, be matriculated in an approved program of study, and be in good academic standing with at least a cumulative "C" average as of the 4th-semester payment
- Be charged at least $200 tuition per year
- Not be in default on any state or federal student loans and not be in default on any repayment of State awards
- Meet income requirements
- 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.

**PURSUIT OF PROGRAM REQUIREMENT FOR NEW YORK STATE AWARDS**

In order to receive New York State awards, a student is required to be in good academic standing. The two measurements that make up good academic standing are the **Pursuit of Program** and **Satisfactory of Academic Progress** (see charts below). The Pursuit of Program requires that the student complete a certain percentage of credits each term. Satisfactory Academic Progress requires that the student earns a specified number of credits and achieves a specified cumulative grade-point average each term.

**PURSUIT OF PROGRAM**

| **NUMBER OF PAYMENTS** | **MUST RECEIVE A GRADE FOR** |
|---|---|
| | |
| 1 or 2 semester) | 50% of minimum full-time requirement (6 credit hours each |
| | |
| 3 or 4 semester) | 75% of minimum full-time requirement (9 credit hours each |
| | |
| 5 or more | 100% (12 credit hours each semester) |

**SATISFACTORY ACADEMIC PROGRESS**

| BEFORE BEING CERTIFIED FOR THIS PAYMENT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th |
| | | | | | | | | | |
| A STUDENT MUST HAVE ACCRUED AT LEAST THIS MANY CREDITS | | | | | | | | | |
| 0 | 6 | 15 | 27 | 39 | 51 | 66 | 81 | 96 | 111 |
| | | | | | | | | | |
| WITH AT LEAST THIS GRADE POINT AVERAGE | | | | | | | | | |
| 0 | 1.5 | 1.8 | 1.8 | 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 are subject to approval by the State Legislature each year. Additional information about these scholarships is available online at **www.hesc.ny.gov.**

**NYS SCHOLARSHIPS**

- Flight 3407 Memorial Scholarship
- Flight 587 Memorial Scholarship
- Military Enhanced Recognition Incentive and Tribute – MERIT Scholarship
- NYS Achievement and Investment in Merit Scholarship (NY-AIMS)
- NYS Memorial Scholarships for Families of Deceased Firefighters, Volunteer Firefighters, Police Officers, Peace Officers, and Emergency Medical Service Workers
- NYS Scholarships for Academic Excellence
- NYS World Trade Center Memorial 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
- NYS Science, Technology, Engineering and Mathematics (STEM) Incentive Program

**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.

The grant award amount is based on financial need and the cost of attendance of the student's school. The minimum and maximum award amounts are determined annually based on funding availability.

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**.

***Updated July 2024***

# IMMUNIZATIONS

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, which 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 within the last five (5) years; 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 five (5) 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 – traditional 3 doses, 2 doses of Recombivax or 4 accelerated doses of Twinrix.
5. COVID-19 - strongly recommended but not required. COVID VACCINE POLICY

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/HEALTH INFORMATION

ADVICE OF ELEVATED RISKS FOR CERTAIN INDIVIDUALS (LAB SAFETY) FORM

Conducting activities in a laboratory might put some persons at elevated risk sufficient to warrant their exclusion from the laboratory or other appropriate accommodation. Therefore, all new students are required to sign a form related to the risks of conducting laboratory activities. If an individual feels that they may be at elevated risk, they should discuss the issue with their physician or a laboratory instructor

to request an accommodation if needed. The form will be made available electronically to all new students.

Although not required, the following are strongly recommended:

- TETANUS, DIPHTHERIA, PERTUSSIS (DTP) - within the last 10 years
- TUBERCULOSIS (TB) SCREENING – All incoming students should complete a risk assessment questionnaire that will identify those who have not been at increased risk for exposure to TB. Students who have one or more identified risk factors for exposure to TB should have a tuberculin skin or blood test.
- SEASONAL INFLUENZA VACCINATION: It is recommended that all students 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.

NOTE: Rotation sites hosting experiential education rotations 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 the inability to graduate from the program.

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 (TB screening, PE, and seasonal influenza vaccination) 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.) PharmD candidates will need to complete this documentation annually immediately prior to starting IPPE rotations through the start of APPE rotations. 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 rotation year (TB screening and physical exam information must be current within one [1] calendar year of the rotation end date.)

TUBERCULOSIS (TB) INFECTION SCREENING (TUBERCULIN SKIN TEST [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 screening 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 TB screening 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.

SEASONAL INFLUENZA VACCINATION:

A seasonal flu vaccination is required annually in the Fall (vaccinations are typically available starting in August each season) for all Clinical Lab Sciences students, Cytotechnology students and students in their professional years of the PharmD curriculum.

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.

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, Albany NY.

ADDITIONAL ROTATION REQUIREMENTS

Some rotation sites have additional requirements that must be documented prior to starting that specific rotation (e.g. antibody titer as opposed to proof of vaccination; drug screen; background check). These additional requirements would be documented in the CORE ELMS database system (for pharmacy students), as well as communicated to the student in advance by Experiential Education staff.

It is the student's responsibility to ensure the requirements are met prior to commencement of the rotation 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 their experience, the student will not be allowed to begin the rotation until they have been fulfilled. Failure to provide sufficient documentation prior to rotations puts a student at risk for being removed from 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.

HIPAA, BLOODBORNE PATHOGENS and INFO SECURITY TRAININGS

Students participating in experiential education leading to a career as a pharmacist must complete a Health Privacy (HIPAA), an OSHA Bloodborne Pathogens and an Info Security training during their P1 year, and annually thereafter. Students will complete the online trainings through The Collaborative Institutional Training Initiative (CITI Program), and is provided free of charge to students. If a student does not complete one of the above requirements initially, they will not receive their assignments for IPPE rotations; in successive years, if the trainings are not completed by the deadline set, students will not be allowed to start their 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. Students must have valid CPR or BLS certification before they begin their IPPE rotations and will be required to keep their certification valid throughout the duration of their APPE rotations. All certifications MUST include a hands-on skills portion (training cannot be completed online only.)

NON-ACADEMIC REQUIREMENTS FOR IPPES AND APPES

Prior to any rotation, students must register as a pharmacy intern in the state that the rotation will be performed, if applicable.

Prior to APPEs, students must have successfully completed their IPPE requirements.

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

- A copy of personal immunization records, which is on file at the College (in the event a site requests to see them).
- Proof of a recent physical exam, 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.)
- Tuberculosis Screening test (PPD skin test or IGRA blood test) - Students must provide medical documentation showing results of a negative TB skin or blood test, or chest x-ray report following a positive test result. The screening must be 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.)
- CPR or Basic Life Support Certification, valid for the duration of all rotations
- Seasonal influenza (flu) vaccination

Some clinical sites may have their own requirements as well, including a criminal background check, a drug screen or an antibody titer (laboratory blood test, which indicates proof of immunity, as opposed to providing proof of having received the vaccine), etc.

Specific requirements, if any, would be noted in the rotation site's record within the CORE ELMS database, and would be communicated to the appropriate students via email in advance of the rotation by Experiential Education staff.

Rotation sites hosting experiential education rotations 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.

## COURSE DESCRIPTIONS

Courses with the following prefixes can be used to satisfy the liberal arts requirement: HUM, EDU, 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 during the semester of the course.

HUM to ENG Prefix: For students who complete the entire 3-semester Humanities Sequence (Hum 101, Hum 102, and Hum 201) at ACPHS, the prefix of one course in the sequence may be changed from HUM to ENG during the semester of the course (upon request to the registrar).

Courses with a "G" at end of prefix and number are graduate courses. Graduate courses are numbered as 600 or higher. Graduate courses numbered as 600-699 are designated as introductory or first year graduate courses, courses numbered 700-799 are considered to be intermediate graduate courses and courses numbered 800-899 are advanced graduate courses. Graduate credit can only be awarded for courses numbered as 600 level or higher. Courses at the 500 level are higher level professional courses (PharmD).

Graduate students cannot receive credit for undergraduate (400 or lower), however graduate courses can be cross-listed and offered simultaneously with an undergraduate (300 or 400 level) or professional course (500 level), as long as the distinctions between the graduate offering and the undergraduate/professional course are explained in the course proposal and approved by the appropriate curriculum committees. Undergraduate and professional students may enroll in graduate courses (600 level or higher) and receive either graduate or undergraduate/professional credit.

- Humanities (HUM)
- Integrated Problem Solving (IPS)
- Introductory and Advanced Pharmacy Practice Experience Rotations (CLK)
- Law (LAW)
- Literature (LIT)
- Mathematics (MAT)
- Medicinal Chemistry (PTP)
- Music (MUS)
- Pharmaceutical Sciences (PSC)
- Pharmacotherapy/Pharmacology
- Pharmacy (PhD)
- Pharmacy (PHM)
- Pharmacy Administration (PAD)
- Pharmacy Skills (PSL)
- Philosophy and Religion (PHI)
- Physics (PHY)
- Psychology (PSY)
- Public Health (PBH)
- Sociology (SOC)

**Art**

**ART 105**
Introduction to Drawing (formerly LAS 141). This course assumes that anyone can learn to draw better if they first learn to see better. Following 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 primarily spent drawing, although there are some brief quizzes on the reading. 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. (3)

**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

**ART 220**
Museum Experience. Why bother going to a museum when all that old stuff is online anyway? This course offers students the opportunity to explore national, local, and regional art museums, report on the experience, and create not only a virtual exhibit but also a brochure highlighting a museum for future visitors from ACPHS. One-third of the class hours will be in the classroom or on class trips; the rest will be completed individually and online. This elective complements and enhances the three semester Humanities sequence, which focuses on masterpieces of civilization and builds upon the notion, as Lionel Trilling stated, that "there is a certain minimum of our intellectual and spiritual tradition which a man must experience and understand if he is to be called educated." (3)

**Biomedical/Health Sciences**

**BHS 201**
Medical Terminology. 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. (3);Prerequisite: Sophomore standing or permission of the instructor

**BHS 230**
Sophomore Seminar in Biomedical Technology. 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. (3)

**BHS 345**

Molecular Diagnostics. The clinical diagnosis using molecular tests has advanced rapidly and become an important field in clinical laboratory science in recent years. The purpose of this course is for students to learn fundamental theory, basic skills and advanced technology in the molecular diagnostics. In this course students will study molecular methods including nucleic acids extraction, PCR and real time PCR, hybridization and next generation sequencing. After that students will also learn how to apply these methods in the detection and diagnosis of infectious disease, cancer and genetic disorders. (3); Prerequisites: BIO 235, CHE 311.

**BHS 346**

Molecular Diagnostics Lab. The laboratory section of this course introduces the theory and use of molecular techniques in the clinical diagnostics lab, with an emphasis on chromosome analysis, nucleic acids isolation, handling, and storage. Analytical techniques common to the molecular lab such as polymerase chain reaction (PCR), quantitative real time PCR (qRT-PCR), and DNA bioinformatics tools will be emphasized. The laboratory exercises are designed to provide a hands-on context for some of the topics being presented in the course lectures and in the readings from the course textbook. (1); Prerequisites: BIO 235, CHE 311.

**BHS 360**

Clinical Anatomy. This course provides a clinical approach to the understanding of human anatomy. Integration of structure and function of organ systems will be emphasized as a way to comprehend pathologic alterations not only to the organ system but to the body as a whole. This approach will focus on the relevant medical terminology, morphology, physiology, biochemistry and clinical anatomic manifestations of disease. At the conclusion of this course, students will possess an anatomic understanding of the human body as it relates to normal physiologic function as well as disease presentation, progression and treatment. Interpretation of basic anatomic findings likely to be reported in commonly used medical imaging techniques such as CAT and MRI scans will be presented. This is an elective for non-BT students. (3); Prerequisite: BIO 121

**BHS 365**

Introduction to Human Pathology. The purpose of this course is to fill the void between commonly taught descriptive pathology and published treatment guidelines for most common diseases in the US today. This will be accomplished through systemic presentations including topics of pathogenesis, traditional pathologic anatomic alterations, as well as diagnostic and therapeutic mechanisms of major diseases in America. Emphasize will be on pathology as a way to understand the presentation of disease, the diagnosis of disease, and therapeutic outcomes. At the completion of this course, students will be able to interpret the results of frequently ordered laboratory tests (thyroid function tests, liver function tests, arterial blood gases, basic bacterial culture results, basic metabolic and hematologic profiles, lipid profiles, basic serologic tests, and selected molecular diagnostics) in light of common disease states. This is an elective for non-BT students. (3);Prerequisite: BIO 215 or PSC 322

**BHS 410**

Clinical Correlations for Health Care Professionals. This advanced level course is directed to students who anticipate employment situations in direct patient care. The purpose of this course is to reduce the perceived gap between previously completed course work and its relevance to the patient encounter. To this end, carefully selected clinical cases will serve to illustrate correlative anatomic, pathologic, physiologic, and laboratory findings as they relate to the presentation and treatment of the patient. The concept of differential diagnosis will also be explored. By the completion of this course, students are expected to be able to identify basic common disease presentations including organ system, salient pathology and lab findings, and potential therapy. (3); Prerequisite: BIO 215.

**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. (3)

**BHS 490**
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); Prerequisite: Junior or Senior status

**BHS 610 G**
Cellular Pathophysiology/Histology I. This course will emphasize the normal microscopic histology and function of epithelia, connective tissue, cartilage and bone, muscle, nerve, blood vessels, respiratory system, female reproductive system, skin, lymphatic system, gastrointestinal system, urinary system, male reproductive system, and endocrine system. Information in this course serves as a basis to appreciate of altered microanatomy caused by pathologic forces. (3); Prerequisite: BIO 214, BIO 216, BIO 235 or equivalent

**BHS 620 G**
Cellular Pathophysiology/Histology II. This course is the continuation of Cellular Pathology and Histology I. Fundamental concepts of general pathology with an emphasis placed on inflammatory and neoplastic states of man are taught by sequential organ system analysis. This course also complements concurrent courses in cytotechnology and molecular diagnostics. Students are expected to develop graded visual diagnostic skills in histopathology and correlative needle aspiration cytopathology (3); Prerequisite: BHS 610

**BHS 730 G**
Clinical Laboratory Management. This course educates students in the topics essential for clinical laboratory entry-level knowledge of management and operations in the current healthcare environment. Students will learn and apply principles of management and leadership, along with conflict management. Additionally, students will develop skills in calculations for laboratory associated finance cost/benefit analysis, budgeting, revenue generation, billing and reimbursements. Students will review topics associated with state and federal regulations including the Clinical Laboratory Improvement Act of 1988 (CLIA), human resource guidelines and regulations, employee performance evaluations and appraisals, education and training of the adult learner. Laboratory operation discussions will focus on good laboratory practice (GLP), quality assurance, performance improvement and total quality management topics, pre analytical, analytical and post analytical processing, laboratory information systems and electronic medical records. Students will review career planning strategies, professional development, resume and interviewing skills. (3)

**BHS 740 G**
Genetics and Molecular Basis of Disease (formerly BHS 650 G). This course lays the foundation of basic genetic concepts with the objective of understanding the hereditability and/or molecular basis of disease. Common genetic diseases such as sickle cell anemia, cystic fibrosis and Huntington's Disease are studied to illustrate the mechanism that mutations causes disorders. Next generation sequencing technology and bioinformatics will be introduced the advanced and future technologies in human genetics. The course will also emphasize topics such as prenatal diagnosis and genetic counseling, cytogentics, cancer and genetics, application of biomarkers, and pharmacogenomics. Lecture and Lab (4); Prerequisite: CHE 311/312 or equivalent

**BHS 745 G**
Molecular Diagnostics (formerly BHS 660 G). Molecular diagnostics uses DNA, RNA, and protein tests to identify a disease, determine its course, evaluate response to therapy, and understand the predisposition for a disease. The purpose of this course is for students to learn basic skills, fundamental theory and advanced technology in the field of molecular diagnostics. After studying assay methods including nucleic acids extraction, PCR and real time PCR, hybridization, arrays and next generation sequencing, students will learn how to apply them to the diagnosis of infectious disease, cancer and genetic disorders. The purpose of the course also includes training and support for students who are interested in becoming clinical molecular biologists. (3) Prerequisite: CHE 311/312 or equivalent

**BHS 750 G**
Flow Cytometry (formerly BHS 670 G). This course introduces the principles and applications of flow cytometry through lectures and laboratory/group work. Major topics include: machine set-up and operation, fluorochromes and fluorescence, spectral overlap and compensation, experimental design, data collection and multi-parameter analyses, immunophenotyping, research application, clinical applications and disease diagnosis. (3); Prerequisite: Graduate standing or permission of instructor

**BHS 755 G**
In situ Hybridization (formerly BHS 675 G). This course is an introduction to the theory and application of molecular hybridization and in situ hybridization techniques. Selection of probes, their application and appropriate detection systems for both RNA and DNA in situ hybridization techniques will be discussed in lecture and laboratory. A focus of the course will be the applications of hybridization techniques to the diagnosis and prognosis of human disease. (2); Prerequisite: BHS 740 or PSC 312

**BHS 760 G**
Advanced Topics in Biotechnology - Fine Needle Aspiration (FNA) Portfolio (formerly BHS 690 G).This course is an independent project required by students in the MS in Cytotechnology and Molecular Cytology Program. The students, under clinical preceptor and faculty advisement, compile FNA specimens from clinical rotations and create a presentation of case studies. Each case study includes patient history, cytologic and histologic findings, photographic images of the cases, ancillary testing results, and information on the entity involved. This project allows students to participate in various laboratory activities and strengthens their training. Only cytotechnology students, who have successfully completed training on campus and are in the clinical rotation phase of the program, are eligible. (3); Corequisite: CYT 770.

**BHS 765 G**
Grand Rounds in Pathology. Case presentations and discussion in cytopathology, surgical pathology, forensics and radiation oncology in the medical grand rounds format. This one credit course will have a series of sessions with pathologists, specialty physicians and other laboratory professionals. The presentations will illustrate an interesting case, patient symptomatology, as well as the entire process of diagnostics, patient management and clinical outcomes; thus integrating diagnostic testing and its critical role in optimal patient care. (1)

**BHS 790 G**
Capstone (formerly BHS 600 G). The capstone project is open to Clinical Laboratory Science and Cytotechnology Master Degree students only. The scope of this project will vary based on the clinical site, investigators, research mentors and research projects available and could be an exhaustive case

study presentation, a hypothesis driven independent research project, or a major literature review on an existing scientific topic that is relevant to the student's field of study. The common elements for each project is the production of a peer-reviewed, journal article quality, written document. Upon completion of the course, the student will demonstrate the ability to synthesize and analyze a complex scientific topic using critical thinking skills, evaluating possible outcomes and clearly presenting sound scientific conclusions. Students may be required to orally present their final project for committee review. (3); Corequisite: CLS 760 or CYT 780

**Biology**

**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, classification of organisms and the principles of evolution. 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 diversity of animal life and the complex interactions that occur between organisms and their environment. Major topics covered include a phylogenetic survey of organisms and 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 selfdiscovery. 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 the 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, evolution, and plant physiology. Laboratory exercises concentrate on cell structure, tissue structure, molecular genetics and biotechnology. This is the initial course in biological sciences for all 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 a phylogenetic survey of organisms, 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 all students. Course prerequisites requiring BIO 121 are also satisfied by BIO 102 and vice versa. (4); Prerequisite: BIO 111 or permission of the instructor; Lecture and Laboratory

**BIO 210**

Microbiology (formerly BIO 312). The goal of this course is to cover the fundamentals of microbiology and infectious diseases. The first half of the course focuses on the general characteristics of prokaryotes, eukaryotes & viruses and explores the basic concepts in microbial physiology and genetics. The mechanisms by which antimicrobials control the growth of microorganisms are also discussed. The second half of the course examines the causative agents and pathogenesis of infectious diseases caused by medically important bacteria, viruses, fungi and protozoa. Diagnosis and treatment of these diseases are also discussed via clinical case studies to foster active learning by the students. The laboratory component provides hands-on experience to students with sterile technique, staining, various biochemical tests and molecular techniques. (4);Prerequisites: BIO 101/111, BIO 102/121; Lecture and Laboratory

**BIO 213**

Anatomy and Physiology I. This lecture course is the first course in a sequence which studies human anatomy and physiology. The goal of this course is to provide an introduction to the function, regulation and integration of organs and organ systems involved in the human body. This course will begin with an introduction, and review of the basic chemistry, cell and tissue concepts covered in General Biology. Topics covered in this course will include the anatomy and physiology of the integumentary, skeletal, muscular, and nervous systems, and special senses. (3); Prerequisites: BIO 101/111, BIO 102/121

**BIO 214**

Anatomy and Physiology I Laboratory. This laboratory course complements the Anatomy and Physiology I lecture course (BIO213). The focus of this course is on human anatomy at a level that is appropriate for those students interested in healthcare careers. The sequence of organ systems studied are integumentary system, nervous system, skeletal system, muscular system and endocrine system. Laboratory exercises teach students concepts in anatomy and physiology using anatomical models, histology specimens, and electrophysiology workstations. Clinical correlations are made through the extensive use of medical case studies. (1); Corequisite: BIO 213

**BIO 215**

Anatomy and Physiology II. This lecture course is the second in a sequence of two courses that studies the function, regulation and integration of organs and organ systems involved in human anatomy and physiology. This course will focus on the endocrine, cardiovascular, lymphatic, respiratory, urinary, and digestive systems. Also covered will be aspects of metabolism, fluid-electrolyte-acid-base balance and temperature regulation. (3); Prerequisite: BIO 213 or permission of the instructor.

**BIO 216**

Anatomy and Physiology II Laboratory. This laboratory course complements the Anatomy and Physiology II lecture course (BIO215). The focus of this course is on human anatomy at a level that is appropriate for those students interested in healthcare careers. The sequence of organ systems studied are male and female reproductive systems, cardiovascular system, respiratory system, urinary system and digestive system. Laboratory exercises teach students concepts in anatomy and physiology using anatomical models, histology specimens, and electrophysiology workstations. Clinical correlations are made through the extensive use of medical case studies. (1); Corequisite: BIO 215

**BIO 225**
Genetics. This lecture-based course will cover the basic principles of genetics, primarily as they relate mammalian and human biology. Major topics to be covered include genomic structure, organization, and function, processes of genetic recombination, DNA mutation and repair, mechanisms of gene regulation, concepts of Mendelian inheritance, selection, genetic mapping, genetic engineering, population genetics, developmental genetics, and model organisms. The role of genetics in human health and disease will also be discussed, with an emphasis on mechanisms, diagnosis, and current treatments for genetic diseases. (3);Prerequisites: BIO 101 or BIO 101/111, BIO 102 /121, or permission of the instructor.

**BIO 235**
Cell Biology. The goal of this course is to achieve a fundamental understanding of the molecular and biochemical processes that take place both within and between cells to keep cells and the organisms they make up alive in a constantly changing environment. By focusing on the structure and function of the enzymes that carry out these diverse processes in eukaryotic cells, students will build on the fundamental chemistry and physics of cells to explore key cellular processes. These include (1) DNA structure, function, replication, and repair (2) gene expression regulation at the levels of transcription, translation, and post-translation (3) how cells obtain energy from food (4) cellular and sub-cellular structure, including membrane structure and protein transport across both internal and external membranes (5) cell signaling and communication between cells and (6) cellular replication and development, including cell division and cancer development. Understanding these concepts will help students to understand how genetic disorders and cancers can arise through errors in critical cellular processes, and students will use case studies explore how mutations in essential enzymes can cause such diseases. This course will be lecture-based with some in-class case studies and weekly problem sets to apply principles learned in class to additional cellular contexts. (3); Prerequisites: BIO 101/111, BIO 102/121

**BIO 236**
Cell Biology Laboratory. In this laboratory course, designed to complement the Cell Biology lecture, students will investigate cell types, discover nucleic acids, synthesize macromolecules, energize cells, manipulate cellular transport, understand reproduction and chromosomes, comprehend genetic inheritance, utilize cell biology for forensics, and learn occupation-applicable cell culture and molecular staining techniques. Students will work in groups, applying knowledge gained in lecture, to solve problem sets related to the laboratory topics. (1); Corequisite: BIO 235

**BIO 240**
Virology. This lecture-based course provides an introduction to the field of virology. Topics presented will include virus structure, viral genetics, steps in viral replication, diseases and pathogensis, and natural history of a variety of medically important viruses. The discovery and activity of contemporary anti-viral drugs and therapeutics will also be discussed. Case studies, group discussions, and analyses of current scientific literature will be used to foster an in-depth understanding of virology and its relationship to human health. (3); Prerequisites: BIO 210

**BIO 245**
Biological Basis of Disease. This course will be translational in nature by teaching students essential concepts in human anatomy, physiology and pathology in the context of significant human diseases in the United States and globally. Topics will include coverage of human disease as it affects the

cardiovascular, respiratory, renal, digestive, immune, neural and endocrine systems. There will be a major emphasis on the cellular, molecular, genetic, and biochemical basis for disease in these organ systems, as well as in heritable diseases and cancer. Introductory lectures will be followed by discussion of the primary literature that complements the lecture material. Designed to give students an appreciation of diseases affecting the major organ systems, and how these illnesses have been analyzed using the tools of genetics, biochemistry, and cell and molecular biology. (3); Prerequisites: BIO 102 or BIO 121

**BIO 270**
Public Health Toxicology. This course will provide the student an understanding of how toxic agents in the workplace, home and environment are identified, evaluated for their potential threat to various populations and the measures that public health officials may employ to protect sensitive populations. In addition, this course will examine the distribution of toxic agents through ecosystems and introduce the student to the assessment tools that the toxicologist uses to predict injury to humans and wildlife. Concepts in this course will usually be introduced through the use of case studies examining landmark cases that have influenced public policy such as Love canal, Bhopal India, and Minamoto Japan. (3); Prerequisites: BIO102 or BIO121, CHE102 or CHE121

**BIO 290**
Undergraduate Research. This course provides an opportunity for students to obtain a hands-on research experience under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. BIO 290 is generally reserved for introductory level experiences and/or smaller scale projects. Students are expected to perform three hours of research related work per credit hour earned. (1-3); Prerequisite: permission of the instructor

**BIO 315**
Public Health Microbiology. The goal of the course is to provide an in depth understanding of emergence, transmission, pathogenicity, and control of infectious diseases relevant to public health. The course will primarily focus on emerging infectious diseases, zoonotic and vector borne diseases, sexually transmitted diseases, and food and water borne diseases. Additional topics of discussion will include bioterrorism and antibiotic resistance issues as they relate to public health. Emphasis will be placed on understanding and applying the critical concepts of epidemiology and microbiology to a particular public health problem by using clinical case studies. (3); Prerequisites: BIO 210

**BIO 331**
Mammalian Cell Culture. The course introduces the students to the principles of mammalian cell culture. Students will learn through active learning activities, including lab-based experiments, case studies, presentations, lectures, and group debates. The course will focus on upstream mammalian cell culture topics, including, (1) importance and applications of mammalian cells in biomanufacturing, (2) growth and analysis of mammalian cells in vitro, (3) principles of mammalian cell-line development, (4) scale-up strategies and production modes, and (5) principles of error prevention for risk mitigation. Through a combination of lectures and laboratory experiments, students will gain real-world experience in culturing and subculturing techniques for mammalian cells from frozen cell banks through scaling up to bioreactors. A suspension-adapted CHO cell line will be used as the model cell line. In parallel, students will also learn cell culturing techniques of adherent mammalian cells. An adherent (anchorage-dependent) mammalian cell line will be used as a model cell line. In addition, students will gain hands-on

training in constructing and working with bench-scale bioreactors. Upon completion of this course, students will learn the principles and applications of mammalian cells and the utilization of mammalian cells for the biomanufacturing of safe and effective biologics.

**BIO 340**
Microbial Genetics. This course will cover fundamental concepts of microbial genetics and will provide an understanding in the structure, maintenance, expression and exchange of genetic materials in microbial cells. In particular, the mechanisms of DNA replication, transcription, translation, and methods for regulation of gene expression will be discussed. The course will also emphasize topics like transduction, transformation, conjugation, transposition and DNA mutation and repair. Application of these concepts to investigate research problems in Bioinformatics and Proteomics is also presented. (3); Prerequisites: BIO 210.

**BIO 348 G**
Microbial Fermentation. This lecture/laboratory course builds upon the scientific knowledge underlying the principles (e.g. fluid dynamics, mass and heat transfer, and the energy balance of bioprocess systems) of upstream fermentation technology to design, develop, and optimize key parameters in a biomanufacturing process. Topics include the optimization of media composition, fermenter and bioreactor design, the strain and host selection, instrumentation, scale-up and process analytical tools to maximize the yield and integrity of a fermentation process. We begin by covering introductory headings such as lab-scale and shake-flask fermentation techniques. Then we dive into fundamental engineering aspects of microbial bioprocessing from thermodynamics, fluid mechanics and transport phenomena perspectives in basic engineering fermentation processes. We continue by complementing these with covering fermentation regimes, process optimization and scale-up strategies and finally finish with several industrial case studies and product development considerations. (3); Prerequisites: BIO 410.

**BIO 350**
Biomedical Laboratory Techniques I. In the first course of this series, emphasis will be placed on imparting hands-on training in immunology and biochemistry laboratory techniques and application of these techniques to investigate research problems. Students will be trained in good laboratory practices, lab safety, proper handling of equipment, use of standard protocols, incorporation of appropriate controls, data collection, analysis and interpretation of experimental results. (3); Prerequisites: BIO 210, CHE 201/211, and CHE 202/221.

**BIO 355**
Biomedical Laboratory Techniques II. In the second course of this series, emphasis will be placed on imparting hands-on training in laboratory techniques routinely used in molecular biology and microbial genetics and application of these techniques to develop and investigate research problems. Students will be trained in good laboratory practices, lab safety, proper handling of equipment, use of standard protocols, incorporation of appropriate controls, data collection, analysis and interpretation of experimental results. (3); Prerequisites: BIO 210, CHE 201/211, and CHE 202/221.

**BIO 365**
Medical Mycology and Parasitology. This first half of this course involves a comparative study of the morphology, physiology, ecology, and pathogenicity of medically important fungi. Discussions will include infectious diseases caused by fungi including their etiology, epidemiology, histopathology, diagnosis, and treatment. The second half of the course will introduce students to protozoan and

helminth parasites of medical and veterinary importance; life cycles, morphology, physiology, taxonomic classification, host-parasite relationships, economic and public health aspects and current topics in parasitic diseases. (3); Prerequisite: BIO 210

**BIO 370**

Microbial Physiology. This lecture based course provides an in-depth analysis of the general concepts of prokaryotic cell biology with a particular emphasis on eubacteria. Topics presented will include key functions of all prokaryotic cells including DNA replication, transcription, translation, protein secretion, energy production, stress responses, motility, and signaling. Key structural components of prokaryotic cells will also be described including membranes, the cell wall, and glycocalyx. Latter portions of the semester will cover the physiology of specific pathogens during the course of infection. This course is focused on lecture-based, graphical presentation but also includes components of self-directed learning and critical thinking including group discussions and student research papers. (3); Prerequisites: BIO 210; CHE 201/211

**BIO 410**

Biopharmaceutical Microbiology. This course will introduce the principles of microbiology as applied to biomanufacturing aspects of biopharmaceutical industry. It will cover a wide range of topics including the nature of microorganisms, contamination sources and control, sterilization and disinfection, and sterility testing methodologies. Mainly, students will see in depth how microorganisms are selected, modified or engineered and then seed trains are conducted for biomanufacturing from frozen vials to benchtop scale alongside microbial metabolism, strain selection and genetic engineering principles. Antimicrobial agents, their modes of action and mechanisms of drug resistance will also be discussed. The students will also acquire knowledge of various microbiological assays. Good Manufacturing Practices (GMP), Quality Control (QC), and Quality assurance (QA) in the biomanufacturing processes of biopharmaceuticals based on current regulatory requirements will also be introduced (3); Prerequisite: BIO 101, BIO 102, 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 chemical carcinogenesis. The primary focus of the course will be on drug-induced renal, hepatic, respiratory, 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 PSC 321, CHE 202/221

**BIO 480**

Microbiology Capstone Experience I. Microbiology Capstone Experience is an opportunity for students to integrate information from earlier courses and apply the concepts and skills acquired to a microbiology related research problem or an extramural internship experience. The course will assist students in their learning by bridging their classroom knowledge with real world microbiological issues faced by the researchers and health care professionals in academia and/or industry. Microbiology Capstone Experience is a combination of two senior-level microbiology courses for a total of six credit hours. Students will be required to complete a hypothesis driven independent research project culminating in an oral/written presentation. An approved internship experience in any microbiology or public health laboratory, pharmaceutical industry, or government agency employing microbiologists may be

substituted for one semester of Capstone experience. (3);Prerequisite: Senior Standing in Microbiology Program or permission of the instructor

**BIO 485**
Microbiology Capstone Experience II. Continuation of BIO 480. (3); Prerequisite: BIO 480

**BIO 490**
Undergraduate Research. This course provides an opportunity for students to obtain a hands-on research experience under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. BIO 490 is generally reserved for more advanced research projects of students with prior research experience. Students are expected to perform three hours of research related work per credit hour earned. Faculty members may expect students to present their research in venues either internal or external to the college. (1-3); Prerequisite: permission of the instructor

**BIO 491**
Undergraduate Research. This course provides an opportunity for students to obtain PharmD professional elective credit for a hands-on research experience under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. BIO 491 is generally reserved for more advanced research projects of students with prior research experience. Students are expected to perform three hours of research related work per credit hour earned. Faculty members may expect students to present their research in venues either internal or external to the college. (1-3); Prerequisite: permission of the instructor.

**BIO 610 G**
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 and BIO 121 or equivalent; BIO 235 or equivalent is recommended.

**BIO 615 G**
Public Health Microbiology. The goal of the course is to provide an in-depth understanding of the emergence, transmission, pathogenicity, and control of infectious diseases relevant to public health. The course will primarily focus on emerging infectious diseases, zoonotic and vector-borne diseases, sexually transmitted diseases, and food and water-borne diseases. Additional topics of discussion will include bioterrorism and antibiotic resistance issues as they relate to public health. Emphasis will be placed on understanding and applying the critical concepts of epidemiology and microbiology to a particular public health problem by using clinical case studies. (3); Prerequisites: BIO 210

**BIO 620 G**
Advanced Topics in Microbiology. This course will explore various cutting-edge topics in Microbiology through Journal club style presentations of primary literature from high impact peer reviewed journals. Each session will begin with a brief overview of the background information by the instructor followed by critical evaluation of the paper through student presentations and group discussions. The course will be divided in four broad themes. The first theme covers general microbial concepts including bacterial

physiology and structure, metabolism and genetics. The second theme will explore the microbial virulence mechanisms, anti-microbials, and antibiotic resistance mechanisms, along with discussing novel prophylactic and therapeutic strategies for important bacterial infectious diseases. The third theme of the course will include the nature and biological activities of viruses, virus-host interactions and some important viral diseases. The last theme will focus on the important advances made in the field of host-pathogen interactions including innate and adaptive immune responses against selected pathogens. (1-3); Prerequisite: permission of the instructor

**BIO 625 G**
Advanced Molecular Biology. This lecture-based course provides an in-depth analysis of the general concepts of molecular biology in prokaryotic and eukaryotic cells that occur in nature as well as those applied to the laboratory. The course consists of 3 parts. The first part of the course will focus on aspects of molecular biology that occur in nature. Topics presented will include detailed mechanisms of DNA organization, DNA replication, transcription, gene regulation, genetic recombination, translation, protein folding and degradation, and biochemistry of lipids and membrane formation. The second part of the course will focus on concepts of molecular biology that have been exploited for use in laboratory research. Topics will include cell growth and tissue culture, analysis and manipulation of DNA (DNA isolation, hybridization, PCR, sequencing, creation of knockouts/mutants, RNAi, qPCR, & RNA seq), the functions and importance of antibodies in research, recombinant protein expression and purification, and protein analysis/detection methods. The third part of the course will focus on scientific communication. In this part of the course students will give a journal-club style oral presentation on a topic in molecular biology. (3); Prerequisite: PSC 311/312 or CHE 312/313 or equivalent.

**BIO 627 G**
Innate Immunology. This lecture and literature based course provides an in-depth analysis of the general concepts of immunology with a particular focus on innate immunity. Topics presented will include a general overview of the immune system to include both the innate and adaptive response. The course will then focus on innate immunity to include; phagolysosome mediated pathogen killing, role of TLR, NOD and RLR in response type, cytokines/chemokine and signaling pathways, and inflammasome. Diseases associated with response dysfunction will also be discussed. This course will consist of lecture, current literature review and student peer-reviewed article presentations; group discussions and student presentations will be essential aspects in demonstrating knowledge; Prerequisite: BIO 101/111 and BIO 102/121. PSC 315 or equivalent is recommended. (3)

**BIO 630 G**
Advanced Cell Biology. This lecture-based course provides an in-depth analysis of the general concepts of cell biology with a particular focus on eukaryotic cells within the animal kingdom. Topics presented will include key events in the cytosol and cytoplasmic organelles (including protein production, protein modifications, vesicle trafficking and energy production), structural components of cells (including membranes, the cytoskeleton, and extracellular matrix), cell signaling, programmed cell death modules, and functions of specialized cell types (including coverage of the immune system). This course is focused on lecture-based, graphical presentation but also includes components of self-directed learning and critical thinking including group discussions and student presentations. (3); Prerequisite: BIO 101/111 and BIO 102/121. BIO 235 or equivalent is strongly recommended.

**BIO 631 G**
Mammalian Cell Culture. The course introduces the students to the principles of mammalian cell culture.

Students will learn through active learning activities, including lab-based experiments, case studies, presentations, lectures, and group debates. The course will focus on upstream mammalian cell culture topics, including, (1) importance and applications of mammalian cells in biomanufacturing, (2) growth and analysis of mammalian cells in vitro, (3) principles of mammalian cell-line development, (4) scale-up strategies and production modes, and (5) principles of error prevention for risk mitigation. Through a combination of lectures and laboratory experiments, students will gain real-world experience in culturing and subculturing techniques for mammalian cells from frozen cell banks through scaling up to bioreactors. A suspension-adapted CHO cell line will be used as the model cell line. In parallel, students will also learn cell culturing techniques of adherent mammalian cells. An adherent (anchorage-dependent) mammalian cell line will be used as a model cell line. In addition, students will gain hands-on training in constructing and working with bench-scale bioreactors. Upon completion of this course, students will learn the principles and applications of mammalian cells and the utilization of mammalian cells for the biomanufacturing of safe and effective biologics.

**BIO 640 G**
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 chemical carcinogenesis. The primary focus of the course will be on drug-induced renal, hepatic, respiratory, 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 PSC 321, CHE 202/221 or equivalent courses.

**BIO 641 G** (pending approval)
Current Topics in Biopharmaceutical Technology. This course will cover special research topics related to emerging and existing technologies in biopharmaceutical manufacturing. The theme of the Spring 2021 course offering will be cell and gene therapies, including but not limited to stem cell engineering, clinical applications of regenerative medicine, and novel approaches to deliver therapeutic biologics. The impact and critical importance of future advances in cell- and gene-based therapeutics within the biopharmaceutical industry will be discussed. (3)

**BIO 648 G**
Microbial Fermentation. This lecture/laboratory course builds upon the scientific knowledge underlying the principles (e.g. fluid dynamics, mass and heat transfer, and the energy balance of bioprocess systems) of upstream fermentation technology to design, develop, and optimize key parameters in a biomanufacturing process. Topics include the optimization of media composition, fermenter and bioreactor design, the strain and host selection, instrumentation, scale-up and process analytical tools to maximize the yield and integrity of a fermentation process. We begin by covering introductory headings such as lab-scale and shake-flask fermentation techniques. Then we dive into fundamental engineering aspects of microbial bioprocessing from thermodynamics, fluid mechanics and transport phenomena perspectives in basic engineering fermentation processes. We continue by complementing these with covering fermentation regimes, process optimization and scale-up strategies and finally finish with several industrial case studies and product development considerations. (3); Prerequisites: BIO 410.

**BIO 650 G**
Research Design. This graduate-level course will introduce students to the research methods used in the

biological sciences. Topics to be covered include research design, data collection and documentation, critical literature review, preparation of a NIH-style grant application, and academic presentations and publications. Class discussions, workshops, and writing assignments will provide students with opportunities to both practice learned research methods as well as apply these methods toward the design of a potential thesis research project. (2)

**BIO 660 G**
Journal Club. This course 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 molecular biosciences, including cell biology, molecular biology, medicinal chemistry biochemistry, microbiology, immunology and infectious diseases. All participants will read and critique the articles. Each student will present at least two articles per semester. (1)

**BIO 665 G**
Biopharmaceutical Microbiology. This course will introduce the principles of microbiology as applied to biomanufacturing aspects of biopharmaceutical industry. It will cover a wide range of topics including the nature of microorganisms, contamination sources and control, sterilization and disinfection, and sterility testing methodologies. Mainly, students will see in depth how microorganisms are selected, modified or engineered and then seed trains are conducted for biomanufacturing from frozen vials to benchtop scale alongside microbial metabolism, strain selection and genetic engineering principles. Antimicrobial agents, their modes of action and mechanisms of drug resistance will also be discussed. The students will also acquire knowledge of various microbiological assays. Good Manufacturing Practices (GMP), Quality Control (QC), and Quality assurance (QA) in the biomanufacturing processes of biopharmaceuticals based on current regulatory requirements will also be introduced (3); Prerequisite: BIO 101, BIO 102, BIO 210.

**BIO 670 G**
Research Rotation. Students will complete two laboratory rotations of seven weeks each 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 program director. Students are expected to spend a minimum of 10 hours per week on laboratory research during the rotation. 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)

**BIO 675 G**
Biopharmaceutical Capstone. The Capstone Course will serve as a culminating part of the MS degree program. It will require the production of a peer-reviewed, journal article quality, written document. The document (25-40 pages) will either be (1) a major literature review on an existing scientific topic that is relevant to the student's field of study or (2) based on a no-credit experiential learning experience such as a co-op, internship, or lab research. Upon completion of the course, the student will demonstrate the ability to understand, synthesize and analyze a complex industrial/scientific topic using critical thinking skills, evaluating possible outcomes and clearly presenting sound scientific conclusions.

Students will be required to orally present and successfully defend their final capstone report for committee review. (3)

**BIO 680 G**
Bacterial Pathogenesis. This course is designed to provide students with fundamental and cutting edge information on the molecular mechanisms of bacterial pathogenesis. Topics presented will include virulence factors, virulence regulation and evasion strategies utilized by bacteria to survive host defense mechanisms. Special emphasis will be placed on understanding the genetic, molecular, and biochemical approaches that can be used to study these host-pathogen interactions. Intervention strategies, including vaccination and anti-microbial therapy along with bacterial resistance mechanisms will also be discussed. Data analysis from primary literature will form a major component of the course. (3); Prerequisite: BIO 210, BIO 236, PSC 315, PSC 311 or CHE 311, PSC 312 or equivalent courses.

**BIO 690G**
Viral Pathogenesis. Considering the increased burden of viral diseases as well as more frequent viral outbreaks, it becomes immensely important to equip new generation of health professionals and researchers with an extensive understanding of viral pathogenesis. This lecture- based course is intended to provide an in-depth understanding of molecular mechanisms underlying diverse virus-induced pathogenesis affecting various tissues. This course will be conducted in 3 parts. In the first part, students will be familiarized with the basic concepts of viral structure, entry, mode of replication, and viral evasion of host immune response. Second part will deal with viral invasion and pathogenesis including neuropathology, cardiovascular complications, inflammation, malignancies, developmental defects, and respiratory complications. The last component will include discussion of advanced research (journal-club style) in the field of viral pathogenesis to enhance student's scientific communication and critical thinking skills. Overall, this course will provide a comprehensive account of disease manifestation by leading viral pathogens (e.g. HIV, HCV, Flaviviruses, Coronavirus, Influenza virus, Herpesvirus, Hepatitis C virus, HPV, and HTLV-1). (3)

**BIO 701 G**
Thesis. The student will identify an appropriate area of research and a thesis advisor. The student will develop a research proposal. The specific topic and nature of the research will be determined by the student and thesis advisor. On receiving approval from the program director, a thesis committee will be established to act in an advisory capacity for the thesis proposal defense. On successful defense of the proposal the student will commence the research. Studies involving humans must be approved the College's IRB. Studies involving animals must be approved by IAUCC. Project involving data collection and management must adhere to GLP requirements. Once the work has been completed, the student will write and defend the thesis. (1-6)

**Chemistry**

**CHE 111** (has also been offered as CHE 101)
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. (4); Lecture and Laboratory

**CHE 121** (has also been offered as CHE 102)
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. (4);Prerequisite: CHE 111; Lecture and Laboratory

**CHE 211** (has also been offered as CHE 201)
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 experience with methods and instrumentation used in the synthesis, purification, and characterization of organic compounds. Lecture and laboratory (4). Prerequisite: CHE 102/121.

**CHE 221** (has also been offered as CHE 202)
Organic Chemistry II. This course focuses on the synthesis and reactivity of the major classes of organic compounds including aromatics, alcohols, ethers, acids, aldehydes, ketones, and amines. The significance of organic compounds in biochemistry and drug chemistry is discussed throughout the semester. Foundational knowledge of the physical and chemical properties of functional groups is used to predict the mechanisms of compound reactivity and product formation. The laboratory provides experience with methods and instrumentation used in the synthesis, purification and characterization of organic compounds. Lecture and laboratory (4). Prerequisite: CHE 201/211.

**CHE 245**
Survey of Organic Chemistry. This course is a one semester overview of the basics of organic chemistry. Physical and chemical properties of organic molecules, nomenclature, acid-base chemistry, chemical reactions of various classes of organic compounds, and stereochemistry are some of the topics to be covered. Designed to provide students in health science programs the background and understanding of organic chemistry principles, it facilitates future coursework in biochemical and biomedical studies. An associated lab component complements the topics covered in lecture and works to develop laboratory skills.(4); Prerequisite: CHE 102/121; Lecture and Laboratory

**CHE 253**
Scientific Communication. The course is designed to familiarize students with various types of scientific communications and to help students develop three core skills: 1) to critically read and analyze scientific documents, 2) to learn and practice writing in proper scientific language and formats and 3) to disseminate scientific information to scientific and lay communities. The characteristics of clear, concise and organized analysis and writing in each type of scientific format will be examined through review and evaluation of scientific literature, presentations and sample grant proposals. Students will develop their skills through in class exercises, homework assignments and preparation of abstracts, proposals and articles. (3); Prerequisite: Junior standing

**CHE 290**
Undergraduate Research. This course provides an opportunity for students to obtain a hands-on research experience under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. CHE 290 is generally reserved for introductory level experiences and/or smaller scale projects. Students are expected to perform three hours of research related work per credit hour earned. (1-3); Prerequisite: permission of the instructor

**CHE 311**
Biochemistry I. This course introduces students to the basic concepts of biochemistry, reviews the key biomolecules (amino acids, proteins and enzymes, carbohydrates, lipids, nucleic acids, coenzymes, vitamins, and other physiologically and pharmacologically active small molecules), and discusses the key metabolic pathways. The relationship between biological function and chemical structure and reactivity are explored using fundamental chemical and physical principles. Lecture (3). Prerequisite: CHE 202/221 or CHE 245.

**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); Prerequisites: PHY 202/222, MAT 235,CHE102/121; Corequisite: CHE 346

**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 390**
Independent Study. This course provides an opportunity for students to participate in a specialized study project under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. Students are expected to perform three hours of project related work per credit hour earned. Lab (1-3). Prerequisite: permission of the instructor.

**CHE 415**
Medicinal Chemistry I. 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. Lecture (3). Prerequisite: CHE 311 or PSC 311.

**CHE 417**
Medicinal Chemistry II. This course continues to explore the fundamental principles that define the relationship between the chemical structure and biological action of drug molecules. A major focus of the course is to study case histories of marketed and experimental drugs. An overview of the disease and the drug discovery approaches employed in drug discovery will be discussed. There will be special emphasis on drug design, metabolism, pharmacology, pharmacokinetics, and synthesis. (3); Prerequisites: CHE 415 or PTP 401 or PSC 431

**CHE 490**
Undergraduate Research. This course provides an opportunity for students to obtain a hands-on research experience under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. CHE 490 is generally reserved for more advanced research projects of students with prior research experience. Students are expected to perform three hours of research related work per credit hour earned. Faculty members may expect students to present their research in venues either internal or external to the college. Students completing CHE 490 to satisfy the research requirement of the chemistry program will be expected to do so. (1-3); Prerequisite: permission of the instructor

**CHE 623 G**
Methods in Spectroscopy. This course covers the theoretical basis 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 202/221

**CHE 640 G**
Medicinal Chemistry I. 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 predicting the pharmacodynamics and 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 prodrug 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); Prerequisite: CHE 202/221;CHE 312 or PSC 311 or equivalent courses

**CHE 641 G**
Medicinal Chemistry II. This course continues to explore the fundamental principles that define the relationship between the chemical structure and biological action of drug molecules. A major focus of the course is to study case histories of marketed and experimental drugs. An overview of the disease and the drug discovery approaches employed in drug discovery will be discussed. There will be special emphasis on drug design, metabolism, pharmacology, pharmacokinetics, and synthesis. (3);Prerequisite: CHE 415/CHE 640 or PSC 431/631 or PTP 401 or equivalent courses

**INTRODUCTORY & ADVANCED PHARMACY PRACTICE EXPERIENCE ROTATIONS**

**CLK 798**

IPPE Community: This experientially-based, 4 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. Additionally, students will participate in health promotion, and disease prevention activities in cooperation with patients, communities, at-risk, targeted populations. This course is a prerequisite to prepare the student for their Advanced Pharmacy Practice Experiences (4); Prerequisites: New York State pharmacy intern permit (and if rotation is outside NYS, the equivalent for the State in which rotation will be completed.) Students must have successful completion of the P1 year and completion of 35 credits (C- or better), which must include: Foundations of Pharmacy (PHM510), Pharmacy Skills 1 (PSL511), Pharmacy Skills 2 (PSL512), Intro to Pharmacotherapy/Self-Care (OTC) (PHM518), APhA Immunization Certificate (PHM585).

**CLK 799**

IPPE Plus – Community Pharmacy. This experientially-based, 3 credit, professional elective course will expose students to the basic day-to-day operations of a community pharmacy and is offered on a limited basis to students who have very little or no community pharmacy work experience. The course objectives mirror the Community IPPE course objectives with emphasis on communication skills and medication knowledge. 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. Prerequisites: (3); New York State pharmacy intern permit (and if the rotation is outside NYS, the equivalent for the State in which rotation will be completed), successful completion of IPPE Community (CLK 798).

**CLK 803**

IPPE Team Based Care. This experientially-based, 1 week (1 credit), required course will expose students to the basic day-to-day operations of a patient care setting. Students will be placed in a direct patient care practice setting to complete specific assignments which require the application of classroom knowledge and skills. To further develop these skills, students will gather and organize information from patient medical charts, conduct patient/caregiver 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 is a prerequisite to prepare students for their Advanced Pharmacy Practice Experiences (1); Prerequisites in addition to the IPPE Community (CLK798) prerequisites include: successful completion of the P2 year with a professional GPA of 2.2 following Spring P2 semester; successful completion of courses which include: Pharmacy Skills 3 (PSL521), Pharmacy Skills 4 (PSL522), Cardiovascular Respiratory Pharmacotherapy (PTP521), Endocrinology/GI/Nutrition Pharmacotherapy (PTP520), Infectious Disease Pharmacotherapy (PTP524).

**CLK 807**

IPPE Institutional. This experientially-based, 3 week (3 credit), required course will expose students to the basic day-to-day operations of an institutional pharmacy. Students will be placed in a direct patient care practice setting to complete specific assignments 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 is a prerequisite to prepare students for their Institutional Advanced Pharmacy Practice Experience (3); Prerequisites in addition to the IPPE Community (CLK798) prerequisites include: successful completion of the P2 year with a professional GPA of 2.2 following Spring P2 semester; successful completion of courses which include: Pharmacy Skills 3 (PSL521), Pharmacy Skills 4 (PSL522), Cardiovascular Respiratory Pharmacotherapy (PTP521), Endocrinology/GI/Nutrition Pharmacotherapy (PTP520), Infectious Disease Pharmacotherapy (PTP524).

**Advanced Pharmacy Practice Experience (APPE) Rotations**

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 PharmD program. The purpose of the APPEs is to provide the student with a broad exposure to various pharmacy practice environments 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 6-week modules; each student is required to complete seven APPE modules (42 academic credits). APPEs are scheduled by the College and typically require the student to be at the practice site a minimum of eight hours daily. Each student must complete five required and two elective modules as follows: APPE Ambulatory Care (CLK812), APPE Community (CLK929), APPE Inpatient (CLK946), APPE Institutional (CLK843), APPE Flex Core (CLK881), APPE Elective 1 and 2 (CLK851 and CLK861). Required rotations must be completed in the United States or its Territories. Prerequisites: Must have successfully completed all required didactic coursework and all IPPEs.

- Community and Institutional APPEs will build upon the students' IPPE experience to provide students with a more in-depth experience in all aspects of community and institutional practice including medication distribution, patient assessment and monitoring, pharmacotherapy assessment, medication control and procurement, medication use systems, drug information services and administrative functions.
- 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; and psychiatry.
- The Flex Core rotation provides additional experience in a direct patient care setting which can include (but is not limited to) ambulatory care, inpatient, or the community pharmacy setting in addition to other areas of specialty practice enabling students to further explore various practice opportunities.
- Two Elective APPEs enable students to self-select rotations based on their area of interest. Electives can be chosen in areas such as: managed care; antimicrobial management; clinical toxicology; consultant pharmacy; 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.

**CLINICAL LABORATORY SCIENCES**

**CLS 307**
Urinalysis and Body Fluids. This course covers the physiology and pathophysiology of renal function and the renal function tests including chemical and microscopic examination of urine. The theory and performance of body fluids analysis will include fecal specimens, spinal fluid and other body fluids. Clinical correlation of other laboratory results with body fluid results and patient diagnosis is emphasized. (1); Prerequisite: BIO 215

**CLS 308**
Urinalysis and Body Fluids Lab. This laboratory experience includes performance of analysis of urine, body fluids, fecal specimens, and semen. Laboratory safety, quality control, and troubleshooting will be emphasized. (1); Corequisite: CLS 307

**CLS 317**
Hematology. This course will address the evaluation of blood cells and in the clinical hematology laboratory. The lecture and laboratory will highlight physiology, pathophysiology and laboratory testing of blood and bone marrow cells, and the evaluation of hemostasis and hemostatic disorders. (3); Prerequisite: BIO 101/111, BIO 102/121

**CLS 318**
Hematology Laboratory. Students will perform a variety of manual and automated techniques used in both hematology and hemostasis and correlate results with hematologic disease states ranging from anemia to leukemia and including thrombotic and bleeding disorders. Emphasis is placed on problem solving experience with respect to both theoretical and practical applications. (1); Corequisite: CLS 317

**CLS 327**
Clinical Microbiology I. Lectures will focus on the characterization, identification and pathogenesis (if any) of commonly encountered human microbiota. This course will be organized into 5 units: 1.) virology, 2.) antimicrobial susceptibility testing and infection control, 3.) aerobic/facultative gram-positive bacteria, 4.) aerobic/facultative gram-negative bacteria, 4.) miscellaneous bacteria. This course will educate and prepare students for career as a health care practitioner utilizing the most updated clinical microbiology theory and applications. (3); Prerequisite: BIO 101/111, BIO 102/121

**CLS 328**
Clinical Microbiology I Laboratory. Students will perform laboratory analysis of a variety of specimens, analyze and record laboratory data, identify aerobic bacteria and sources of infection and, comply with all safety procedures, (1); Corequisite: CLS 327

**CLS 329**
Clinical Microbiology II. This course is a continuation of Clinical Microbiology I and will focus on mycology, parasitology and body system associated clinical specimens and infections. Lectures will focus on the characterization, identification and pathogenesis (if any) of commonly encountered human microbiota. The course will be organized into four units: 1.) anaerobic and mycobacteria bacteriology, 2.) medical parasitology, 3.) medical mycology and 4.) body system associated infections. This course will educate and prepare students for a career as a health care practitioner utilizing the most updated clinical microbiology theory and applications.(3); Prerequisite: CLS 327

**CLS 330**
Clinical Microbiology II Laboratory. Students will perform laboratory analysis of a variety of specimens,

analyze and record laboratory data, identify anaerobic bacteria, parasites, fungus and yeasts. Students will learn and comply with all safety procedures. (1); Corequisite: CLS 329

**CLS 337**
Clinical Immunology. 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. Emphasis is placed on problem solving experience with respect to both theoretical and practical applications. (3)Prerequisite: BIO 101/111, BIO 102/121

**CLS 338**
Clinical Immunology Laboratory. Students will perform many of the immunologic techniques used to determine antigen and antibody specificities and contribute to diagnosis of disease states including autoimmune viral, bacterial, fungal, and parasitic diseases. Emphasis is placed on problem solving experience with respect to both theoretical and practical applications. (1); Corequisite: CLS 337

**CLS 339**
Immunohematology. This course will apply immunologic principles to the study of immunohematology including blood groups, transfusion therapy, investigation of transfusion reactions and related pathologic mechanisms. Donor selection, blood processing and handling as well as compliance with all regulatory bodies will be emphasized. Discussion will also include other human tissues available for therapeutic and surgical use. (3); Prerequisite: CLS 337

**CLS 340**
Immunohematology Laboratory. Students will perform both manual and automated techniques to determine blood type, identify compatible donor blood, identify unexpected antibodies, determine hemolytic disease of the newborn and investigate transfusion reactions. Emphasis is placed on problem solving experience with respect to both theoretical and practical applications. (1); Corequisite: CLS 339

**CLS 346**
Clinical Chemistry. This course applies biochemical principles to the study of clinical chemistry and its application to diagnosis and treatment of patients. The significance of lipids, carbohydrates, proteins, enzymatic measurements, and acid-base balance as they apply to diagnoses of cardiovascular, pulmonary, renal and metabolic diseases is emphasized. (3)Prerequisite: CHE 311 or equivalent

**CLS 347**
Clinical Chemistry Laboratory. Students will perform both manual and automated techniques focused on the measurement of chemical analytes in human specimens and correlate the results with the pathophysiology of disease presentation. Emphasis is placed on problem solving experience with respect to both theoretical and practical applications. (1); Corequisite: CLS 346

**CLS 348**
Clinical Biochemical Techniques This course covers the principles and operation of a variety of instruments used in clinical laboratories and medical research. The physical and chemical properties of matter that make measurement possible and the application of these principles to analyses involving spectral, electrochemical, chromatographic, colligative and nuclear instrumentation. The laboratory

offers hands on experience with the principles and operation of a variety of instruments used in clinical laboratories and medical research. (1); Prerequisite: CHE 102

**CLS 400**

Principles of Clinical Laboratory Management. This course educates students in the topics essential for clinical laboratory entry-level knowledge of management and operations in the current healthcare environment. Students will learn and apply principles of management & leadership, along with conflict management. Additionally, students will review to include calculations, laboratory associated finance cost/benefit analysis, budgeting, revenue generation, billing and reimbursements. Students will review topics associated with state and federal regulations including the Clinical Laboratory Improvement Act of 1988 (CLIA), human resource guidelines & regulations, employee performance evaluations and appraisals, education and training of the adult learner. Laboratory operation discussions will focus on good laboratory practice (GLP), quality assurance, performance improvement and total quality management topics, pre analytical, analytical and post analytical processing, laboratory information systems and electronic medical records. Students will review career planning strategies, professional development, resume and interviewing skills. (3); Prerequisite: Enrollment in CLS Program.

**CLS 401 and CLS 402**

Clinical Practicum I and II. Students will participate in a number of experiential exercises in various 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. (9 each); Prerequisite: Completion of all CLS 300 level courses

**CLS 410**

Clinical Correlations. Through case study and extensive literature review, this course is the culmination of the CLS curriculum. The results of testing in all laboratory disciplines are applied to the diagnosis of the patient, the resolution of pre-analytic, analytic and post-analytic issues and the appropriate management of the clinical laboratory.(3)Corequisite: CLS 402

**CLS 610 G**

Clinical Microbiology I (formerly CLS 550 G). Lectures will focus on the characterization, identification and pathogenesis(if any) of commonly encountered human microbiota. This course will be organized into 5 units: 1.) virology, 2.)antimicrobial susceptibility testing and infection control, 3.) aerobic/facultative gram-positive bacteria, 4.)aerobic/facultative gram-negative bacteria, 4.) miscellaneous bacteria. This course will educate and prepare students for career as a health care practitioner utilizing the most updated clinical microbiology theory and applications.(4)Prerequisite: BIO 101/111, BIO 102/121 or equivalent

**CLS 620 G**

Clinical Microbiology II (formerly CLS 560 G). This course is a continuation of Clinical Microbiology I and will focus on mycology, parasitology and body system associated clinical specimens and infections. Lectures will focus on the characterization, identification and pathogenesis (if any) of commonly encountered human microbiota. The course will be organized into four units: 1.) anaerobic and mycobacteria bacteriology, 2.) medical parasitology, 3.) medical mycology and 4.) body system

associated infections. This course will educate and prepare students for a career as a health care practitioner utilizing the most updated clinical microbiology theory and applications.(4); Prerequisite: CLS 610 G

**CLS 630 G**
Clinical Immunology (formerly CLS 530 G). The content of this course includes development of the immune system, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex and antigen presentation, and immune responses to infections organisms and tumors. The lecture and laboratory will focus on diagnostic techniques employed in the identification of viral and bacterial diseases and the diagnosis of autoimmune diseases, allergies, immune deficiencies and AIDS. (4); Prerequisite: Graduate standing or permission of instructor

**CLS 640 G**
Clinical Chemistry (formerly CLS 540 G). 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. (4); Prerequisite: CHE 311 or equivalent

**CLS 650 G**
Clinical Hematology and Hemostasis (formerly CLS 520 G). This course will address the evaluation of blood cells in the clinical hematology laboratory. The lecture and laboratory will highlight physiology, pathophysiology and laboratory testing of blood and bone marrow cells, and the evaluation of hemostasis and hemostatic disorders. (4); Prerequisite: Graduate standing or permission of instructor.

**CLS 655 G**
Urinalysis and Body Fluids (formerly CLS 525 G). This course includes the medical biochemistry of renal function and the interpretation of urinalysis and body fluid (spinal fluid, seminal fluid, and other body fluids) testing. Emphasis is on clinical significance and interpretation of laboratory results, specimen collection and preservation, biochemical test procedures, clinical microscopy and cytology of urine sediment. (2); Prerequisite: BIO 215 or equivalent

**CLS 660 G**
Immunohematology (formerly CLS 535 G). Immunohematology is the laboratory application of immunologic principles to the identification of appropriate blood and blood products for transfusion and body tissues for transplant. The course will cover characteristics of red cell and white cell specific antigens, donor qualification and blood processing as well as the techniques for identification of auto- and allo-antibodies important to transfusion medicine and transfusion service specific regulations and quality control requirements. (4); Prerequisite or Corequisite: CLS 630

**CLS 760 G**
Clinical Correlations (formerly CLS 690). Students will evaluate a series of case studies which integrate all disciplines of laboratory diagnostic medicine. The cases will require knowledge of laboratory test result normal, factors that affect the accuracy of laboratory test results, quality management principles, and

the ability to integrate diverse information to arrive at a diagnosis, corrective action or quality improvement recommendation. (3); Corequisite: CLS 780.

**CLS 770 G / 780 G**
Clinical Practicum I and II (formerly CLS 670 G; CLS 680 G). Students will participate in a number of experiential exercises in the 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. (9 credit per semester); Prerequisite: Completion of all required CLS 600 level course

**COMPUTER SCIENCE**

**CMP 115**
Introductory Excel. This course provides an introduction to health analytics using Microsoft Excel spreadsheet software. Topics include worksheets and workbooks, functions, tables, templates, charts/diagrams and data analysis. Application to health related data will be included to illustrate the use of Excel as a tool in health and healthcare settings. (2)

**COMMUNICATIONS**

**COM 102**
Group Communication. This hybrid course (½ online and ½ face-to-face) is introductory and designed to provide basic understanding of the group dynamic and process. Critical facets of group functioning are studied and experienced to apply key concepts that are relevant to group development, team building, roles, problem-solving, and leadership. These concepts will be examined in a variety of group settings to help students understand critical events which occur in both large and small cohorts. (3)

**COM 105**
Workshop in English as a Second Language. This ESL Workshop provides one to one or small group support to students for whom English is a second language and have proficiency in English, but who require some specialized study to accompany their current courses. The course provides practice and instruction in the writing process, conventions of academic genres and English grammar and usage. The course is designed as a workshop to support students with the writing they are doing in an elective or required course such as Academic Reading and Writing, Principles of Communication, or the Humanities sequence. This course may be repeated for credit up to three times. (1)

**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). This interactive, workshop-style course introduces students to the core communication skills required for effective public speaking. Students will learn to

design and present messages in two primary genres: speaking to inform and speaking to persuade. Specific skills/topics to be addressed include: verbal and nonverbal delivery mechanics, managing speech anxiety, grabbing attention, organizational structures, language style, Powerpoint design and usage, audience analysis, and job interviewing skills. In addition to scripted messages, students will develop confidence with extemporaneous (improvisational) speaking. (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 175-** Academic Writing and Presentations for ESL I.
This course is designed for nonnative English speakers who are proficient in English but need to improve their academic writing and presentation skills. Students will gain confidence in academic writing and speaking in order to increase fluency and proficiency. The course will also enable students to develop a practical understanding of the conventions of academic writing and presentations. Students will also have opportunities to work with and get feedback on writing and presentation assignments in other courses. (3)

**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 the 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 course introduces students to the social scientific discipline of interpersonal communication. Interpersonal communication provides the building blocks from which all larger forms of social organization are created and maintained. Friendships, intimate relationships, families, football teams, juries, hiring committees, PR firms, hospitals, political campaigns, and governments all rely at some level on interpersonal communication. The course is divided into two large units. The first unit covers foundational theories in the area of interpersonal communication. The second unit covers what might be considered "problematic" aspects of interpersonal communication (e.g. conflict, deception, social predicaments). Throughout the course, concepts from interpersonal communication are applied to different health care settings, demonstrating how interpersonal dynamics affect the delivery and receipt of health care. (3)Prerequisite: COM 115

**COM 250-** Persuasion and Social Influence
This course prepares students to become agents of change, capable of influencing the choice-making of individuals, organizations, and communities. Coursework provides students with foundational knowledge and skills in three interrelated domains of social influence: 1) logic and reasoning; 2) rhetoric and persuasion; 3) bargaining and negotiation. Students will develop and apply these skills through interactive communication projects that span a range of media (oral, textual, visual, and digital).

**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); Prerequisite: COM 115

**COM 312**
Health Promotion. This course combines theoretical approaches to persuasion and behavior change with applied, experiential learning to provide students with the knowledge and skills to promote health initiatives in a variety of communication media.(3); Prerequisites: COM 115 or COM 120

**COM 315**
Health Campaigns. Communication campaigns play an important role in public health and safety. The overarching goal of this course is to examine strategies and outcomes of informative and persuasive health communication campaigns. The course will first provide an overview of the history of campaigns, audience analysis, formative research, theory, design, and evaluation, and second, examination of specific health campaigns. This course will include a hands-on group project designing and implementing a health message intervention that will give students practical experience and will allow students to develop professional communication and teamwork competencies. Principles covered in this course are fundamental to the field of Health Communication. (3); Prerequisite: Junior standing or permission of the instructor

**COM 318-** Health Teamwork
This course develops core communication competencies required for contemporary health teamwork, using dynamic game-based learning design and team-based experiences as contexts for concrete application of course concepts. Key topics include interdisciplinary role relationships, leadership styles, decision-making, and conflict management. The course adopts an ecological model of health and healthcare, examining the interactions and interdependencies of diverse professionals from across the health system (e.g. epidemiologists, health educators/interventionists, healthcare providers, policy makers, and more).

**COM 320-** Patient-Provider Communication.
A great deal of health care is delivered interpersonally. When health providers and health consumers interact, they coordinate their social and communicative activities in order to realize the practical goals of therapeutic partnership. This course exposes students to a range of communicative challenges that health providers and health consumers experience when they interact. Various communication strategies for overcoming these challenges will be discussed and evaluated. Applying an ecological perspective on health care, relationships between macro-level factors (culture, gender, economics) and micro-level factors (interpersonal relationships, interaction) will be discussed. (3); Prerequisite: Junior standing or permission of the instructor

**COM 330-** Intercultural Communication in Health
Modern health care systems require practitioners to provide care to patients with diverse values, beliefs, experiences, and behaviors. This course exposes students to the communication challenges that patients and providers navigate as part of an intercultural therapeutic partnership, with special emphasis on the ways in which health care delivery can be tailored to patients' unique social, cultural, and linguistic needs. The course uses the term "culture" broadly and inclusively, highlighting traditional racial/ethnic cultures (e.g. Middle Eastern), national cultures (e.g. Mexican) and co-cultures (e.g. African American), while also including contemporary notions of cultural membership (e.g. cultures of medicine, cultures of disability, LGBTQ). Key topics include: minority health disparities, health literacy, barriers to health care access, cultural variations in communication style, the use of medical interpreters, traditional and complementary medicine, and culturally-specific media environments that influence health beliefs and behaviors. (3); Prerequisite: Junior standing or permission of the instructor

**COM 339-** Professional and Technical Writing.
This hybrid course (½ online and ½ face-to-face) addresses the development of students' writing abilities through a mix of mini-lectures, workshops and active learning activities. 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

**COM 350-** Qualitative Research Methods.
This workshop-style course provides training and applied experiences with qualitative methods used in the social sciences, including in-depth interviews, focus groups, participant observation, and discourse analysis. The key philosophical assumptions of qualitative research, as well as the complementarity of qualitative and quantitative methods, will be emphasized. Using a team-based approach, students will collect and analyze original data, as well as publicly available data sources. At the end of the course, teams will present their findings in an academic manuscript and in a formal presentation. (3); Prerequisites: SOC 301, 3rd year standing

**COM 390-** Independent Study in Communication.
This is a mentor-student proposed elective course project focused on communication. The student under faculty advisement must submit a proposal to the Department Chair for approval. (1-3); Prerequisite: permission of the instructor

**CYTOTECHNOLOGY**

**CYT 610 G -** Cytopathology of Female Genital Tract (FGT) (formerly CYT 510 G).
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 various parts of the FGT. 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. Cellular changes induced by therapies and environmental entities will be examined and criteria to identify these will be discussed. 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. (4); Prerequisite: BIO 215, BIO 216, BIO 235 or equivalent; Lecture and Laboratory

**CYT 620 G -** Exfoliative Non-Gynecologic Cytopathology I (formerly CYT 520).
This course will present the basic principles of cytopathology applied to the cellular samples obtained from the respiratory tract and surrounding structures through brushings, washings, scrapings, and fine needle aspirations. Gross and microscopic anatomy, physiology and pathology of these sites will be explored. Specimens from the respiratory tract and surrounding structures, such as lymph nodes, will be examined. This course will expand on the foundation for identifying and understanding the basic epithelial cell types that began in Cytopathology of the Female Genital Tract (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 examined and criteria to identify these will be discussed. 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. (2); Prerequisite: CYT 610; Lecture and Laboratory

**CYT 630 G -** Exfoliative Non-Gynecologic Cytopathology II (formerly CYT 530 G).
This course will present the basic principles of cytopathology applied to the cellular samples obtained from a variety of body sites primarily through brushings washings and scrapings. Gross and microscopic anatomy, physiology and pathology of these sites will be explored. Specimens from the gastrointestinal tract, 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 examined and criteria to identify these will be discussed. 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. (2); Prerequisite: CYT 610, CYT 620; Lecture and Laboratory

**CYT 640 G and CYT 650 G** Cytopreparatory Techniques I and II (formerly CYT 540 G; CYT 550 G).
These courses will develop the skills necessary to prepare a wide variety of specimens. It will teach students how to select and apply the appropriate staining technique for each specimen. Techniques for fine needle aspiration procedures and immediate adequacy assessments will be explored. Telepathology will be discussed and utilized. Students will learn various aspects of laboratory management 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 local clinical affiliates. (1 each); Prerequisites: Bio 214, BIO 216, BIO 235 or equivalent

**CYT 660 -** Fine Needle Aspiration Cytology I (formerly CYT 560).
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, kidneys, adrenal glands, ovaries, thyroid and salivary glands 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 examined and criteria to identify these will be discussed. 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. (3); Prerequisites: CYT 610, CYT 620 and CYT 630; Lecture and Laboratory

**CYT 670 -** Fine Needle Aspiration Cytology II (formerly CYT 570).
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 breasts and lymph nodes will be examined. The course will also include FNA of unusual lesions, including: 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 examined and criteria to identify these will be discussed. 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. (3); Prerequisite: CYT 660; Lecture and Laboratory

**CYT 770 G -** Clinical Practicum I (formerly CYT 590 G).
This course marks the experiential education portion of the program curriculum. It consists of one six-week rotation at a clinical affiliate laboratory. Under the supervision of their clinical preceptor, students participate in the various daily laboratory activities. As permitted, students will prescreen gynecologic and non-gynecologic specimens, review cases with teaching technologists and/or pathologists, utilize the laboratory information system, intake/accession specimens, apply cytopreparatory techniques, participate in rapid on-site evaluations of fine needle aspiration (FNA) procedures, perform and/or interpret ancillary testing, attend tumor boards, perform cytologic-histologic correlation, and experience laboratory management responsibilities. The main goals of clinical rotations are to strengthen diagnostic skills, gain additional exposure to the profession's entry-level competencies, and practice with the highest degree of professionalism. Students will adhere to all college, laboratory, and hospital standards. (3); Prerequisite: CYT 670

**CYT 780 G -** Clinical Practicum II (formerly CYT 600 G).
This course is a continuation of CYT 770. It is the second clinical rotation and is 12 weeks in duration. Ideally, students complete the second rotation at a different clinical affiliate laboratory than the first rotation. This ensures a well-rounded clinical experience. (6); Prerequisite: CYT 770

**Economics**

**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 317**
Health Economics. In this course, we will learn how to apply economic tools to the study of health and medical care issues. We will examine the special features of medical care as a commodity, the demand for health and medical care services, the economic explanations for the behavior of medical care providers (i.e., physicians and hospitals), the functioning of insurance markets, and technology diffusion. Our discussions will touch on current policy topics such as the prospective payment system, relative value scales, insurance reform, rationing, and price regulation. We will also be examining the role of and economic justification for government involvement in the medical care system. Finally, we will use the tools we have learned to review and analyze various proposals for health care reform. (3)

**ECN 325**
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)

**English**

**ENG 101**

First Year Writing. Provides students with an introduction to, and substantial practice in academic, professional, and scientific writing. Based on the idea that good writing is an extension of engaged thinking, students will practice critical thinking, reading, and writing skills to dialogue with texts and one another. Through practicing writing as a process and conducting scholarly research in the ACPHS library database (formatted in Vancouver Style Citation), students will compose pithy and compelling texts. Student writing will demonstrate an understanding of the intended audience, as well as knowledge and development of writing conventions (such as incorporation of research, coherence, tone, mechanics, etc.) through revision and public presentation. Class time will include short micro-lectures on the writing craft, student-led discussion of course readings, and in-class writing exercises and peer-review workshops. This course is writing intensive and requires that students complete 10,000 words or 20 typed pages double-spaced including drafts, and homework.

**ENG200**

Breast Cancer Discourse: Aside from being the most common cancer diagnosed and the second most deadliest cancer among US women, carcinoma of the breast is perhaps the most studied malignancy in human history. Although scientific advancements in treatment have been slow, women today have a 35% higher chance of surviving the disease than they did in 1990. Despite the 1 to 2 % decline in breast cancer's mortality rate each year, the history of breast cancer and its treatment in the US reveals how profit and perceptions of women impede scientific research and treatment. Breast cancer culture in the US is synonymous with the pink ribbon and campaigns such as "Race for the Cure." This culture was first critiqued by Barbara Ehrenreich in 2001 as infantilizing as well as demoralizing in its celebration of breast cancer as a cause for creative self-transformation and survival. Our class will investigate the truth of breast cancer through close reading of nonfiction accounts written by women poets in treatment. As Anne Boyer writes in The Undying: Pain, Vulnerability, Mortality, Medicine, Art, Time, Dreams, Data, Exhaustion, Cancer, and Care, winner of the Pulitzer Prize in 2020, "…the truth must be written for someone, a someone who is all of us, all who exist in the push and pull of what bonds of love tie us to the earth and what suffering drives us from it." We will look at how the bonds of love expressed in these texts can support breast cancer patients and their care as well as how these texts expose the suffering that is caused by gender and race bias in healthcare and society. Ultimately, we will examine how poetic creative nonfiction can hold a mirror up to a system and culture that might not otherwise see itself and by so doing, hold it accountable to a demand for change. 3 credits. Corequisites: None. Major Restrictions: None

**ETHICS**

**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. The course focuses on reading and application of ethical theory, as it applies to critically understanding and improving ethically - grounded clinical care. Special consideration is given to how personal and professional identities shape our ethical duties and responses, through reading feminist perspectives on ethics. Topics will vary, but may include genetic counseling, reproductive ethics, end-of-life care, do-not-resuscitate orders, informed consent in treatment and in research, the right to refuse treatment, the allocation of scarce medical resources, and ethical problems of the clinic

versus public health. In addition, we make use of case studies, occasionally films, and/or presentations with expert guests. (3); Prerequisite: Junior standing or permission of the instructor

**ETH 315-** Health, Disease, and Authority in Medicine.
Modern medicine has relied heavily upon scientific authority to make factual claims about health and disease. Providing good medical care, however, involves knowing more than "just the facts." This class is an opportunity to think carefully about biomedicine's proper role in defining core medical and public health concepts like health, disease, and illness. What is the proper role of technology in health care? How do medicalized systems shape what we can know and how we can act? What are the basis and limits of clinical diagnoses? What authority do patients have to speak about their own health conditions? How do answering these questions improve our ability to provide morally grounded patient care? (3); Prerequisite: Junior standing or permission of the instructor

**ETH 320-** Research Ethics Workshop
Examining ethical issues arising from research in biomedicine and science and focusing on research ethics is essential for public health and social science students. This class will introduce and analyze ethical issues as related to scientific research. (1); Corequisite: SOC 301

**ETH 410-** Special Topics in Bioethics
This reading-intensive seminar will focus on philosophical theory and its applications to contemporary problems in medicine, science, and technology. Our rigorous group investigation of active moral problems and philosophical questions will draw from both modern and historical texts. Topics will vary based on the instructor's and students' needs and interests. Please note: this is not intended to be an overview course in ethics; instead, we will read deeply around a focused set of topics. (3); Prerequisite: Junior standing or permission of the instructor

**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 students with the opportunity to explore the ethical dimensions of these topics in written and discussion form. (3); Prerequisite: P3 in the PharmD program or permission of the instructor

**ETH 610 G-** Ethics in Research (formerly PSC 671)
This course includes a discussion format based on ethical issues involved in the research process. Students will have focused reading on the ethical theory and its application to issues involved in research. This involves close readings, case studies, and in-class discussions. Topics covered will include, but are not limited to, ethical theories as applied to research ethics, ethical issues before research committees, ethical issues involving human and animal subjects, reporting of research, conflict of interest, and the creation of scientist as ethical agents. (1)

**law**

**LAW 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)

**HISTORY**

**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. In this course, students will be introduced to the core methods of historical research including the close analysis of primary source texts and historiography (the analysis of diverse interpretations of historical events).(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, demographies, 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. In this course, students will be introduced to the core methods of historical research including the close analysis of primary source texts and historiography (the analysis of diverse interpretations of historical events).(3)

**HIS 141**
Modern American History. The course examines the history of the United States from 1877 to the present. As a class we will examine the major cultures, demographic shifts, military conflicts, and political and religious structures that shaped the United States during that time. The course stresses historical content but, just as important, hones critical thinking skills concerning how we as Americans interpret history. We will utilize a history text but supplement that not only with primary documents that reflect how people of the time felt about the points we discuss, but also secondary articles interpreting historical events from a modern perspective. Since ACPHS emphasizes health care, a large part of our readings and class discussion will focus on health-related topics, such as the effect Spanish flu had on the United States and the world during the WWI era, or how American reaction to the polio epidemic reflects Cold War policies and attitudes. In this course, students will be introduced to the core methods of historical research including the close analysis of primary source texts and historiography (the analysis of diverse interpretations of historical events).(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)

**HIS 215**
Vietnam War (formerly LAS 891). This course examines America's most controversial 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. In this course, students will be introduced to the core methods of historical research including the close analysis of primary source texts and historiography (the analysis of diverse interpretations of historical events). Also, students will be introduced to the concepts of causality, necessary and sufficient causes, teleology, historicism, and presentism. (3)

**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)

**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. In this course, students will be introduced to the core methods of historical research including the close analysis of primary source texts and historiography (the analysis of diverse interpretations of historical events). Also, students will be introduced to the concepts of causality, necessary and sufficient causes, teleology, historicism, and presentism. (3)

**HIS 230**
America in a Global Context. This course explores the relationships between the United States and such regions of the world as the Caribbean, South America, Africa, East Asia, the Pacific Rim, Europe, and North America. Emphasis is on social, cultural, political, and economic interactions over the past two centuries and in the contemporary world. The goal of the course is to illustrate how the United States has always been part of the world, and, at the same time, how the world has always been part of the United States. (3)

**HIS235**
Plagues in U.S. History: From Smallpox to Covid-19. The course examines the history of several plagues in U.S. history: the "virgin soil" epidemics of the Americas, the cholera and yellow fever epidemics of the eighteenth and nineteenth centuries; the tuberculosis pandemic of the nineteenth century and early twentieth century; the influenza pandemic of 1918-1919; the polio epidemics in the early-to-mid twentieth century, HIV-AIDS from the 1980s to the present, and COVID-19. In this course, we will explore how the British North American Colonies and the United States has dealt with epidemic disease and how epidemic disease has shaped U.S. history and society. The United States has a unique political culture and system of government that has shaped its efforts to combat disease. We will look at physical causes of the diseases, immediate cultural responses, and the way these plagues produced long-lasting effects on local and national cultures, politics, and demographics. We will also examine the public health measures and medical treatments developed to combat these plagues. 3 credits. Corequisites: None. Major Restrictions: None

**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)

**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)

**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)

**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: COM 115

**HIS 330**
History of Public Health and Medicine. This course explores the history of public health and medicine in America from the early colonial period to the present. The course will address the key factors that have contributed to the decline in mortality and rise in life expectancy in the United States. Finally, the course will examine the impact that the United States has had upon public health across the globe. (3); Prerequisite: 3rd year standing or permission of the instructor

**HEALTH OUTCOMES AND INFORMATICS**

**HOI 610 G**
Quantitative Regression Analysis (formerly 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. (3)

**HOI 615 G**
Health Outcomes (formerly PAD 615 G). 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. (3)

**HOI 625 G**
Health Systems (formerly PAD 675 G). 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. 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)

**HOI 635 G**
Statistical Programming (formerly PAD 636 G). The goal of this course is to introduce students to the use of the SAS programming language for analysis of health outcomes data. Students will learn to use the SAS environment to write programs for reading and processing data and to perform basic data management tasks. This course will use Base SAS and SAS Enterprise Guide to provide access to SAS software, and course-related data. (3)

**HOI 645 G**
Epidemiology I (formerly PAD 693 G). 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. The course
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. (3)

**HOI 646 G**
Epidemiology II (formerly PAD 694 G). Epidemiology is the study of the distribution and determinants of health-related states or events in specific populations and the application of this study to control health problems. These determinants are often seen in clinical practice and clinicians have a real opportunity to systematically evaluate various exposure-outcome relationships. The purpose of this course is to build on the foundations of epidemiology taught in Epidemiology 1. The emphasis of this course is application & variations on epidemiologic theory. The course is designed to develop critical thinking skills through

the critique of journal articles, classroom discussion, lecture, and group exercises. Students will become aware of how to efficiently design and interpret epidemiologic studies. The course exposes students to common variants of traditional study designs and how these variations affect the validity & precision of exposure-response relationships. Epidemiology 2 has a greater emphasis on confounding, selection and information biases and techniques to minimize these biases using contemporary research methods. Logistic regression and other multivariate analyses are among these methods and this course reviews the basic concepts necessary to interpret these types of analyses (3); Prerequisite: HOI 645

**HOI 655 G**
Health Economics (formerly PAD 610 G). This course is designed to introduce students to the economics of health care, with an emphasis on individual (i.e. demand side) decisions. We will examine how to apply microeconomic tools to analyze health care issues. Topics to be covered include demand for health and health care, individual responses to incentives inherent in health insurance markets, labor market effects, and health capital and health behavior decisions. Additionally, methodological issues for policy evaluation including cost-effectiveness and cost benefit analysis and estimating policy effects will be examined. Discussions will cover theoretical foundations as well as empirical methods and findings. (3)

**HOI 665 G**
Health Informatics (formerly PAD 741 G). Health Informatics will introduce students to an interrelated set of theories, issues, technologies and methods related to the desire to improve healthcare through information technology. Different perspectives on the topic will be presented, with a particular emphasis on human factors and organizational learning. Students will gain practical experience in developing small health-related web applications. This will assist them in understanding the practical difficulties involved in improving systems through technology. In addition to a set of core health informatics topics, students will be given a set of optional topics from which they will choose one to research in depth. (3)

**HOI 690 G**
Topics in Public Health (formerly PAD 691 G). 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). (3)

**HOI 710 G**
Introduction to R Computing. This course is an introduction to the statistical computing environment R. In this course you will learn how to write programs in R in order to perform tasks that quantitative researchers must perform. You will learn the packages and functions that are used in statistical analysis as well as techniques for managing data and using graphs to visually describe data. (3); Prerequisite: MAT 610; HOI 610

**HOI 720 G**
Big Data Analytics. Big data refers to the idea that analysts manage, analyze, visualize, and extract useful information from large, diverse, distributed, and heterogeneous data sets to accelerate the progress of

discovery, innovation, and information. Data are generated at such a great speed today that there is such large amounts of data that the challenge is how to develop efficient and effective computational tools to analyze the data to gain insight and make predictions; the interdisciplinary approach to machine learning, data mining, statistics, management, and analysis. This class will provide an overview of advanced machine learning, data mining, and statistical techniques that arise in data analytic applications. You will learn and practice data analytic techniques. (3); Prerequisite: MAT 610; PAD 636, PAD 725

**HOI 750 G**

Capstone (formerly PAD 750 G). The capstone project is an integrative activity with a variety of final products based on the degree program and type of project undertaken. It is an opportunity for a student to gain additional training in one or more areas of health outcomes and informatics. The scope of the projects will vary based on the industry placement or investigators involved and may include but not limited to the examination of the primary literature on the subject, organizing and modeling data, performing health outcomes and informatics analysis, and providing recommendations. The common elements for each project is the production of a high quality project (research project or exhaustive case studies), the requirement for oral presentation of the final project and review by the corporate and faculty supervisor. (3); Prerequisite: Permission of Program Director

**HOI 751 G**

Industry Practicum (formerly PAD 751 G). The industry practicum is part of a capstone experience for students in ACPHS's master's degree program in Health Outcomes and Informatics. The practicum offers an educational opportunity for students to work for corporate clients doing real-time work, under the guidance of faculty, to analyze problems, negotiate requirements and scope, and solution development. The experience integrates all of a student's previous coursework. The capstone project is an integrative activity with a variety of final products based on the type of project undertaken. It is an opportunity for a student to gain additional training in one or more areas of health outcomes and informatics. (3); Prerequisite: Permission
of Program Director

**HOI 761 G**

Thesis (formerly PAD 733 G). Students will pursue a thesis project in a health outcomes research area selected to appropriately match their chosen career goals. In conjunction with the thesis advisor, 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. Thesis work is compiled in a dissertation and presented as part of the thesis defense. (1-6); Prerequisite: Permission of Program Director

**HUMANITIES**

**HUM 115**

Voice and Identity.  An interdisciplinary humanities course that focuses on understanding the events and trends of the 20th and 21st centuries in this complex, globally-connected world by considering the role of identities: people and things “not seen” and “not heard.” We will look at a variety of historically ignored groups and how they relate to the environment, population, wealth, power, and tensions and conflicts. Political, social, economic, literary, and artistic events of the previous century suggest that

dominant voices drown out oppressed voices. How can these identities express themselves? We will study visual and written texts by authors from diverse cultural backgrounds. These works will lead to discussions, informal writing exercises, and formal assignments. Students will explore the impact of cultural concerns for an increasingly multi-cultural world.

**HUM 140**
Travel in Literature and Images (formerly LAS 171).
In this course, students study travel literature and images beginning with Homer's The Odyssey and ending with contemporary accounts. Students also create their own travel reports to share with the class during the last few weeks of the semester. This course asks students to consider not only how the act of travel but also how representations of travel 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 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, soul, and rap) can help us to understand ourselves, others, and the world. (3)

**HUM 160**
Fiction and Film (formerly LAS 334).
Fiction and Film is designed to deepen students' comprehension and enjoyment of both fiction and film as well as their understanding of the process of adapting written texts to the screen. Students read three short novels or short stories and view the film adaptations. These books, stories and films pose particular questions and challenges to the process of adaptation as well as illustrate certain key concepts of literary and film texts. Students will also work on a project that provides practice in the process of adaptation and will have the option of making their own short film.

**HUM 165**
Introduction to Greek Mythology through Literature and Film (formerly LAS 337). Greek and Greco-Roman mythology has continued into the modern era via such diverse avenues as poetry, theater, art, political theory, philosophy, and archaeology. Students in this course will examine not only the myths themselves and how mythology has endured for thousands of years but also what Greek and Greco-Roman myths illustrate about the broader human condition. In short, why do these myths endure, and does their survival reflect the broader nature of humanity? Students will argue mythology from the perspectives of gender, history, literature, philosophy, warfare, and anthropology. Last, they will study the various ways we see Classical mythology reflected in modern American and global societies. (3)

**HUM 220**
Medical Humanities. This medical humanities survey course studies how the interdisciplinary engagement of the arts, social sciences, and medicine adds to medical education and practice. This course aims to stimulate and enhance students' critical inquiry skills and growth in empathy and compassionate care. Important issues in life, in health, and in our psychological, emotional, and existential experiences as human beings will be explored through multiple genres and perspectives, including literature, film, history, philosophy, religion, and ethics. Topics may include but are not limited to: the history of medicine, the doctor-patient relationship, death and dying, doctor-writers, narratives of illness, illness in film, medicine and power, religion and bioethics, suffering and hope. (3); Prerequisite: 2nd year standing or permission of the instructor

**HUM 245**
Human Rights in the Age of Genocide. Designed for students who wish explore the concept of human rights in an era when genocide has become a common warring practice in various regions of the world, this course studies significant genocides of various ethnic and minority groups. The course will look at the universal declaration of human rights and the practices of human rights groups such as Amnesty International, Human Rights Watch and engage the various readings and films/documentaries of genocidal events, the precipitating events and the aftermath of those genocides. (3)

**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 cultures in historical, national, and global contexts. This course also includes a unit on health and health care in the Caribbean. Overall, this course considers how Caribbean literature and music (e.g., calypso, reggae, dancehall, soca) can help us to understand ourselves, others, and the world. (3)

**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. This course also includes a unit on health and health care in Africa. Overall, this course considers how African literature, film, and music can help us to understand ourselves and others with an emphasis on appreciating the impact of African cultures throughout the world. This course is taught in conjunction with ACPHS's annual Africana Film Series. (3)

**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)

**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 a 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)

**HUM 285**
Culture and Customs of Senegal. This course introduces students to the culture and customs of Senegal (West Africa) including the role of culture and customs in health and health care. Although this course can be taken without going to Africa, the course prepares students for a 3-week (June - July) study abroad in Senegal. Students who go to Senegal intern in one of the following areas: healthcare, art therapy, orphan care, women’s rights, the environment, or teaching. Pairs of students reside with selected Senegalese families. Activities in the capital Dakar include attending lectures at the West African Research Center and day trips. During a 10-day guided tour of the country, we visit the Holy Sufi City of Touba, small villages, an artist colony, Saloum Delta National Park, and go on wildlife safaris. As determined by a student’s program and in consultation with the course instructor and the student’s program director, a student in an appropriate year of study can earn 3 credits for this course and then additional credit by fulfilling the course requirements of CLK 803 for IPPE in Patient Assessment credit, or HHS 401 for Capstone Experience credit. (3)

**HUM 386**
Culture, Customs, and Health of Belize. Although this course can be taken without leaving Albany, this course prepares students for a 2-week study and medical mission in Belize (during the January following the fall semester). During the fall semester, students learn about Belize and give presentations on tropical diseases, developing-world health care, and health conditions specific to Belize. Students also prepare pamphlets and educational skits and practice the basic health-clinic skills they will use in January. In Belize, students immerse themselves in Belizean culture by living with families in San Ignacio (2 or more students per family), attending lectures and workshops, visiting Maya ruins, hiking, caving,

and snorkeling the world's second longest barrier coral reef. In villages along Belize's border with Guatemala, students set up and run health clinics, participate in medical home visits, and educate grade-school students about health and hygiene. As determined by a student's program and in consultation with the course instructor and the student's program director, a student in an appropriate year of study can earn 3 credits for this course and then additional credit by fulfilling course requirements of CLK 803 for IPPE in Patient Assessment credit, or HHS 401 for Capstone Experience credit. (3); Prerequisite: COM 115

**Humanities Selectives**

**Humanities Methods and Approaches Selective Options**

- HIS 140 Early American History
- HIS 141 Modern American History
- LIT 130 Creative Writing
- LIT 175 African American Literature and Music
- LIT 260 Aging in Film and Literature

**Science through the Humanities Lens Selective Options**

- HUM 220 (Sections 001 and 002) Medical Humanities
- PHI 265 Mindfulness-Based Stress Reduction
- PHI 285 Philosophy of Science
- PHI 290 Spiritual Healing

**INTEGRATED PROBLEM SOLVING**

**IPS401** - Integrated Problem Solving Workshop Introduction
This workshop will begin to incorporate pharmacology and therapeutic topic areas into clinically oriented discussion, evidence based decision making and SOAP note preparation.

**IPS402** - Integrated Problem Solving Workshop Basic
This workshop will build upon the skills and tactics taught in Introduction to IPS (formerly IPS 3). More specifically, this workshop will start to build more clinically oriented decision making and SOAP note documentation. For IPS-BASIC, 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 IPS-BASIC. Students will continue to advance the skills learned in Introduction to IPS (formerly IPS 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.
Prerequisite: IPS401

**IPS501** - Integrated Problem Solving Workshop Intermediate
This workshop will build upon the problem solving and patient-centered care skills introduced and reinforced in IPS workshops Introduction and Basic. IPS501 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, IPS501 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. IPS501 is distinguished from previous IPS workshops by offering increasingly 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. Prerequisites: IPS401, IPS402

**IPS502** - Integrated Problem Solving Workshop Advanced
Advanced IPS is the final workshop of the Integrated Problem Solving series. This workshop 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. Advanced IPS, 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. In this regard, Advanced IPS is a 2-credit course secondary to the increased demands of the course. Cases for Advanced IPS will be authored by Pharmacy Practice faculty and include challenging multidisciplinary patient scenarios, therapeutic controversies, the practice of Medication Therapy Management, 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 the student's individual professional presentation. Prerequisites: IPS401, IPS402, IPS501, PSC451

**PCW521 Patient Care Workshop 1**
The Patient Care 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, demonstrate effective written and verbal communication, and function effectively in small group sessions. The workshops will be led by peer leaders and faculty facilitators under the direction of a faculty course coordinator.

Patient Care Workshop 1 is the first workshop in the Patient Care Workshop (PCW) Sequence, introducing students to the Pharmacists' Patient Care Process (PPCP). The Patient Care Workshops are a series of small group learning opportunities that maximize peer-to-peer learning and faculty modeling. Patient Care Workshop 1 will incorporate pharmacology and pharmacotherapy topics into clinically oriented discussion, explore evidence-based decision making, and instruct how to write formal Subjective, Objective, Assessment, and Plan "SOAP" notes. Cases will be derived from pre-requisite and co-requisite course content. Prerequisite: Doctor of Pharmacy Students only

**LITERATURE**

**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, discuss, and write about world novels. Selections may come from North America, South America, Europe, Africa, and/or Asia. Discussion topics will include themes that illuminate our understanding of the human condition, structural and symbolic devices used by the writers, and historical and biographical contexts. Some attention will be given to defining the novel as a genre and tracing its development over time. Assignments include reading 4 – 6 novels, writing analyses of the novels, and presenting on a comparative thematic topic. (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 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 sHOIne 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 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)

**LIT 215**
American Literature (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. In written and oral assignments designed to develop their own responses to the literature, students will search for touchstones for their own lives and the lives they read about. (3)

**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)

**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)

**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)

**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)

**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

**LIT 350**

Special Topic in Shakespeare. In this upper division course, students will read a selection of plays by William Shakespeare, the list for which will vary from semester to semester. What will be constant is an examination of structural theories of comedies and/or tragedies, drama as a genre, and thorough literary analyses of the works of Shakespeare through close readings of selected plays and class discussions. The historical and biographical contexts of Shakespeare will be given some consideration. Students should expect to write formal essays and informal responses, and deliver oral presentations about the readings and actively participate in class discussions. (3); Prerequisites: COM 115.

**LIT 355**

Special Topics in the Novel. In this upper division course, students will read a selection of novels, the list for which will vary from semester to semester. What will be constant is an examination of the novel as a genre and thorough literary analyses of the works through close reading of selected world novels and class discussions. The historical and biographical contexts of the novels will be given some consideration. Students should expect to write formal essays and informal responses, and deliver oral presentations about the readings and actively participate in class discussions. The course may be offered in the traditional 3 hours of class meetings a week or as a hybrid course in which the students meet 1 to 2 hours a week and complete work independently on line. Because the course is a 300 level course, students are required to have completed the Humanities sequence and Principles of Communication or the equivalent thereof. (3); Prerequisites: COM 115

**LIT 390**

Independent Study in Literature. This course provides an opportunity for students to participate in a specialized study of a particular facet of literature. Examples may include a genre of literature, time period, or an author's body of work. The student under faculty advisement must submit a proposal to the Department Chair for approval. (1-3); Prerequisite: Permission of the instructor

**MATHEMATICS**

**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 121**
Calculus I. This course is a study of algebraic and transcendental relations, with emphasis on applications in the physical sciences. Limits, differentiation, applications of derivatives, area under the curve, Fundamental Theorem of Calculus, methods of integration, and applications 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 155**
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. This course is open only to students in the College's BS programs. (3)

**MAT 211**
Calculus II. This course is a continuation of Calculus I, and is primarily focused on expanding the repertoire of integration techniques to include: powers of trigonometric functions, powers of hyperbolic functions, trigonometric substitutions, rational functions, power series expansions, and improper integrals. In developing these methods, additional calculus concepts are examined, such as: implicit and logarithmic differentiation, L'Hopital's rule, partial fraction decomposition, sequences, series, and Taylor series. (4); Prerequisite: MAT 121

**MAT 235**
Differential Equations. This is a one-term treatment of ordinary differential equations with applications. Topics include classification of, and what is meant by the solution of a differential equation, first-order equations for which explicit solutions are obtainable, explicit methods of solving higher-order linear differential equations, and an introduction to systems of differential equations. Applications of first-order linear differential equations and second-order linear differential equations with constant coefficients will be studied. Applications in the mechanics of motion, population models, chemical reactions and other models will be used to motivate the particular differential equations to be solved. Technology will be an integral part of this class. (3); Prerequisite: MAT 211

**MAT 290**
Independent Study/Research. This course provides an opportunity for students to participate in (1) a hands-on research experience or (2) a specialized study project under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. MAT 290 is generally reserved for introductory level experiences and/or smaller scale

projects. Students are expected to perform three hours of research or project related work per credit hour earned. (1-3) Prerequisite: permission of the instructor

**MAT 380**

Topics in Mathematics or Computation. Topics in Mathematics or Computation typically cover a specific topic in an area of pure mathematics, applied mathematics, statistics, or computation and are intended to enhance and expand the selection of offerings from semester to semester and offer specialized courses in emerging fields. The number of credit hours and scope of the course are at the discretion of the faculty member involved and requires approval by the department chair. Repeatable for credit. (1-3); Prerequisites: MAT111 or MAT121, and/or MAT145 or MAT155, and/or additional prerequisites required by the instructor based on the specific topics course being offered.

**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

**MAT 490**

Independent Study/Research. This course provides an opportunity for students to participate in (1) a hands-on research experience or (2) a specialized study project under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. MAT 490 is generally reserved for more advanced research projects of students with prior research experience. Students are expected to perform three hours of research related work per credit hour earned. Faculty members may expect students to present their research in venues either internal or external to the college. Students are expected to perform three hours of research or project related work per credit hour earned. (1-3); Prerequisite: permission of the instructor

**MAT 610 G**

Statistical Inference and Modeling. This course provides students with a basic knowledge of biostatistics. It includes methods of experimental design and data analysis used to make inference. Topics covered include confidence intervals, hypothesis testing, multivariable regression, generalized linear models, survival models and analysis of variance. The course will also include a component which introduces the students to statistical programming. (3)

**MUSIC**

**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)

**MUS 120**
American Roots Music. This course explores the musical forms, genres and instruments that uniquely evolved on American soil and serve as the basis of American popular music today. More than just a reflection of the diversity of the American experience, students will make connections to important social, political, historical and literary movements of the 19th and 20th centuries. (3)

**PHARMACY ADMINISTRATION**

**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 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 451**
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 511**
Jurisprudence. This course provides an overview of the history of drug law in the United States with an emphasis on New York state law. The current federal and New York state laws are reviewed in depth with a focus on preparing students to pass the MPJE exam® and to practice pharmacy in the state of New York. (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. (3); Prerequisite: PAD 415

**PAD 520**
Preparing for Residency: This 1 credit hour elective course provides a comprehensive introduction to post-graduate residency training with the goal of preparing students to be competitive residency candidates. Students will gain understanding of what residency is, the various types and characteristics of residency programs, and the possible benefits this training offers. Skills such as CV writing, interviewing, and professionalism will be covered. This is a hybrid course consisting of both face-to-face interactions and online activities, with majority of the course requiring independent-individual study. Students will apply course content via completion of a mock residency application and participation in a mock interview as part of a live 2-day workshop. Motivated students with a tentative or definite interest in post-graduate residency seeking additional information and guidance through the application process will benefit most from this course.

**PAD 536** - Pharmacy Administration
Effective management in all pharmacy practice settings is contingent upon an appreciation for and understanding of the business of pharmacy and all 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 medication safety and quality, third party programs, inventory management, patient advocacy, and human resources management, as well as leadership and management. The overall purpose of the course is to prepare the students to be knowledgeable about and sensitive to the issues concerning pharmacy from the perspectives of all stakeholders (e.g. patients, providers, manufacturers, employees, etc.) and to develop the management skills necessary for success in practice (3); Prerequisites: PAD 415, PSC 441, PAD451, PAD515. Doctor of Pharmacy Students only.

**PAD 525** - Managed Care Pharmacy

The purpose of this course is to familiarize the student with the concept and the process of Managed Care across the Health Care System. Topics to be discussed in this course include the history of Managed Care, trends in quality, outcomes and patient safety, managed care models, pharmacy benefits, P&T process, drug information and monographs, Comparative Effectiveness Research (CER) measurement and analysis, new drug review, and clinical guidelines. Additionally, the students will apply knowledge gained by examining the new drug launches in the US Health Care Systems and the impact that those changes have had on the Health Care to Americans (3); Prerequisite: Elementary Statistics (MAT 145, or equivalent)

**PUBLIC HEALTH**

**PBH 102-** First Year Seminar in Public Health
This seminar course will provide students with an introduction to many health and science related professions and to the Public Health Program at ACPHS. The goal is to present a wide variety of options to you and give you a forum in which to discuss these career choices and the academic paths that will help you reach your goals. Class will meet for approximately 1 hour each week. 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 include academic research, medical education (MD, DO), physician assistant studies, public health, and health policy and communication. As part of this course, students will prepare a résumé including a detailed outline of their plans to enhance their résumé over their time at ACPHS. Students will also prepare an evaluation of each speaker, keeping a record of specific suggestions made by each speaker as a reference document. As a class, we will also read a book and learn about the idea of public health through that process. (1)

**PBH 210** - Introduction to Data
Data is vital to modern health care systems and growing in complexity. Gathering data and organizing it to answer important questions in clinical practice and public health and safety are essential skills for those working in health and health care. Learning to access patient, clinical data and the wide range of data sources (e.g., administrative data, patient reported data, and secondary data) and the common mechanisms to represent clinical data (e.g., ICD). Strategies for optimizing data quality and questions around the ethics, privacy and ownership will also be discussed. The future of technology and its influence on health care data and acquisition will be explored. Beginning to understand existing tools for data analytics. (3); Corequisite: PBH 211

**PBH 220-** 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)

**PBH 230-** Statistics for Public Health
Students will identify and apply the basic concepts and methods of biostatistical data analysis in public health. Data usage, analysis, and evidence-based approaches to public health data will be introduced. Specific topics covered include epidemiological study design, descriptive statistics, probability, confidence interval estimation, hypothesis testing, and power and sample size calculations. Regression analysis will be introduced.

**PBH 301-** Research Methods for Public Health
This course provides students with exposure to a variety of research methods in the behavioral and social sciences. It will focus on the research process from crafting a research question to gathering data and analyzing the results through both quantitative and qualitative techniques. The course will emphasize applied research methods and we will develop skills in understanding and interpreting data. At the end of the course, students will have had exposure to a broad range of data collection methods as applied to a variety of health issues and problems. (3); Corequisite: ETH 320

**PBH 310-** 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)

**PBH 320-** Geography of Health
The Upper East Side. Rural America. Spanish Harlem. The Stroke Belt. Appalachia. China Town. Sunny California. These evocative place names conjure images of wealth and poverty; isolation and community; health and disease. This course explores how and why place matters for health; how we explore the spatial patterns of health and disease; and how the assessment, assurance, and policy actions of public health can address disparities associated with where people grow-up and live their lives. Students will read about the geography of health from bestselling memoirs, essays and journalism, research findings, and textbooks. They will see and hear about the effects of place from movies and documentaries. They will experience how scientists explore health using spatial analysis and geographic information systems (GIS). And they will encounter public health in action by exploring and documenting the interplay between health and place in the neighborhoods of Albany and its surroundings.(3) Prerequisite: SOC 120 or equivalent

**PBH 330-** Global Perspectives in Epidemiology.
Global health is of critical importance with the emergence of new diseases such as SARS and H1N1, the potential threat of biological agents such as anthrax, the continued prevalence of diseases such as malaria and dengue, the co-evolution of HIV and multiple drug resistant tuberculosis, the return of once-vanquished diseases like polio, and the export of chronic diseases from industrialized countries to the rest of the world. This course provides an overview of global perspectives in epidemiologic investigations. Students will explore key epidemiologic principles to address these issues and suggest interventions to improve poor health and reduce disease and disability worldwide and provides an

overview of global public health concepts as they related to the field of epidemiology. (3); Prerequisites: SOC 301, SOC 120, PAD 393

**PBH 335-** Determinants of Health
This course will familiarize students with the biological and social determinants of health and health outcomes in the United States and the multiple, often-overlapping factors underlying health disparities, including race, class, gender, sexuality, immigration status, and the environment. It will draw from biomedical sciences, public health, social sciences and the humanities to enrich our understanding of the determinants of health. Using the lens of social justice, root causes are explored and organizations working toward just solutions are highlighted. Students will be challenged to move towards creative correctives in healthcare advocacy, research in medicine and public health, and development of just and equitable healthcare policy that is informed by the background of these complex, often harmful, social forces.

**PBH 340-** Survey Research Methods.
This course is intended to familiarize students with the theory and application of survey research methods in data collection. For researchers in social and behavioral sciences and applied professional fields including public health, social surveys are an essential tool. Course material will examine the decisions made by a health researcher in designing and implementing a survey. Coursework will include the hands-on development of each part of the survey process including the creation of a survey instrument and associated research plan for implementation and analysis. Students will also learn about existing survey data and sources that could be relevant for health researchers and will work to analyze and present results from such existing data to answer relevant health questions. (3); Prerequisite: SOC 301

**PBH 345-** Concepts in Community Health Practice.
This course provides an integrated application based approach to public health concepts and practice by examining the philosophy, purpose, history, organization, functions, tools, activities and results of public health practice at the national, state, and community levels. The course also examines public health occupations and careers. Case studies and a variety of practice-related exercises will serve as a basis for student participation in real world public health problem-solving simulations. The various components of the course aim to stimulate interactions among student and instructors around important problems and issues facing public health. (3); Prerequisites: SOC 120, SOC 101

**PBH 350-** Epidemiology
Epidemiology is the foundational science of public health. Public health relies on evidence generated by epidemiologic inquiry in order to form policy, shape social norms, make treatment and prevention recommendations, and control disease. In this introductory epidemiology class, students will learn epidemiologic methods through practice-based activities. The activities include: solving an outbreak in real time; ruling in on the science behind the dramatic changes in smoking norms in US since the 1960's; role playing John Snow's London cholera ghost map in the 1850's; debating the personal impact of the international public health community's strategy to end the HIV/AIDS epidemic; and discovering the breadth of public health by researching the discoveries of famous epidemiologists. This class stresses two core competencies of public health professionals: public health communication and information literacy.

**PBH 360-** Field Epidemiology.
This course is designed to provide an overview of the methods used in epidemiologic field investigations. It provides students with a comprehensive review of the basic components of an outbreak investigation, an introduction to public health surveillance, and an overview of specific types of investigations in which a field epidemiologist might become involved, including traceback studies, environmental health assessments, noninfectious health event investigations, contact tracing, and forensic epidemiology. In addition, resources that often come into play in outbreak investigations are presented, such as public health laboratories, the incident command system, and geographic information systems. (3); Prerequisite: SOC 301

**PBH 365-** Service Learning in Public Health
Service learning combines academic instruction with community service and focuses on critical, reflective thinking along with personal and community responsibility. This course provides an immersive service experience addressing a public health need that will vary by semester based upon community needs. Students will work closely with faculty and community members and be mentored on how to address real-world public health problems in Albany, with attention to underlying systemic issues.

**PBH 401-** Public Health Capstone
The Capstone Experience should be a health related, project or applied experience that synthesizes your training at ACPHS with practical, real-world experiences. One applied public health clinical, research, or community-based experience is required during the senior year. Students can choose to complete the Capstone Experience over 1 or 2 semesters in their senior year at ACPHS and can pursue between 3 and 6 academic credit hours. Students must complete status updates throughout the semester, must present their projects/papers/experiences back to the HHS community at ACPHS, and complete a brief evaluation of their experience. (3); Prerequisite: Senior standing in the Health and Human Sciences Program or permission of the instructor

**PHARMACY**

**PHD 525** - Drug Information and Scientific Literature Evaluation
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. Students will acquire knowledge of DI resources, study design, biostatistics using relevant examples. Students will learn literature retrieval and evaluation skills using examples from primary and secondary literature and will develop a formalized approach to drug literature evaluation. 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. Written assignments/quizzes/exams will provide students an opportunity to apply knowledge learned during synchronous in person classroom/on-line zoom lectures, in person classroom/on-line active learning activities, and on-line learning modules. Knowledge and skills developed in this course will prepare students for subsequent IPS workshops and pharmacotherapy course offerings. Prerequisite: Doctor of Pharmacy Students only.

**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 556**
Updates in Pharmacotherapy. In preparation for APPE, board exams, and practice, this course aims to provide P3 students with opportunities to assess the role of newer drugs therapies in the management of various disease states already taught in the PTPM curriculum. Students will participate in weekly learning activities after attending pharmacist-led lectures and case-based discussions that evaluate newer vs. established drugs therapies. Students will practice identifying and evaluating literature/drug information resources to make evidence-based recommendations. The course will be taught by ACPHS Faculty along with pharmacists who are currently participating in the ACPHS Teaching/Learning Program as part of residency training. (3); Prerequisites: P1, P2 and P3 Fall Semester

**PHILOSOPHY & RELIGION**

**PHI 115**
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 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**
Logic and Reasoning. This class focuses on inductive and deductive reasoning. We cover a wide range of topics in critical thinking, such as rational argumentation, fallacies, definition, meaning, truth, and evidence. We discuss how the techniques for critical reading and thinking that we develop in this course are applicable to your work in other classes and to your future careers. (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: CHOIstianity, 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)

**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)

**PHI 245**
Introduction to Buddhism and Meditation (formerly LAS 249). This course will provide an introduction to the world view and practice of Buddhism. This will include the study of key teachings of Buddhism, including the Four Noble Truths; the life of the Buddha; and example texts and teachings from a variety of Buddhist authors. We will also examine different schools/approaches to Buddhism, including Zen Buddhism and Tibetan Buddhism. Additionally, the course will include regular instruction in the practice of meditation and mindfulness techniques. (3)

**PHI 247**
Mindfulness Based Stress Reduction. Mindfulness Based Stress Reduction (MBSR) is a practice-focused course in meditation and mindfulness techniques that will allow students to manage and mitigate stress. Through an introduction to contemplative practices, as well as reading, discussion, and written reflection, the students will gain a sense of control over their health and well-being through a method proven to have physical and mental health benefits. (1)

**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)

**PHI 255**
Religion, Philosophy, and Film (formerly LAS 272). This course will explore examples of contemporary cinema from a wide variety of genres and regions that reflect various dimensions of world religious and philosophical traditions. We will examine and discuss the images, metaphors, and ideas expressed in film as a means to explore and contemplate some of the following questions: What is the sense and purpose of human life? What are the ways that film presents and dramatizes religious or philosophical concepts? What role does religion play in human life or what meaning does it provide? Can film evoke or illuminate religious or spiritual experiences and philosophical insights? Can film be morally, philosophically, spiritually, or religiously educational? Everyone is asked to bring their own questions to bear upon the films and class discussions. Each week we will watch a film in class and students will also be required to participate in ongoing conversations on a discussion board. (3)

**PHI 260**
Mindfulness Based Stress Reduction: Mindfulness Based Stress Reduction (MBSR) is a practice-focused course in meditation and mindfulness techniques that will allow students to manage and mitigate stress.

Through an introduction to contemplative practices, as well as reading, discussion, and written reflection, the students will gain a sense of control over their health and well-being through a method proven to have physical and mental health benefits.(3 credit)

**PHI 280**
The Philosophy and Practice of Yoga. It is believed that yoga (Sanskrit, “to yoke” or “to harness”) goes back to the earliest roots of Indian history. This course will provide an introduction to the history, philosophy, and practice of yoga. We will study key texts in the tradition of yoga, such as Patanjali’s Yoga Sutras, the Bhagavad-gitacontemporary writings on yoga, as well as research on the health effects of yoga. The course will include weekly practice of yoga, including work with physical postures (asanas), breathwork (pranayama), and meditation techniques. (3)

**PHI 350**
Nature and Wellness. This course looks at how human interactions with Nature can promote spiritual, psychological, and physical wellbeing. We will read historical and contemporary texts that explore human-Nature relationships focusing on contemplative approaches that emphasize spiritual, ecological, social, and ethical concerns. We will also look at human-Nature interactions in relation to health outcomes. Through critical reading, discussion, and reflective experiences in Nature, students will consider the importance of Nature to their individual lives, their communities, and to our ecologically and culturally interdependent world. This course will include an experiential component including one or more field trips.(3); Prerequisite: 3rd year standing or permission of the instructor

**PHI 360**
Mindfulness Based Stress Reduction (MBSR) is a practice-focused course in meditation, mindfulness, and gentle yoga practices that will allow students to manage and mitigate stress. Through an introduction to contemplative practices, as well as reading, discussion, and written reflection, the students will gain a sense of control over their health and well-being through a method proven to have physical and mental health benefits. Students will also examine the philosophical and practical underpinnings of Mindfulness Based Stress Reduction, and investigate research on its health benefits. (3 credit)

**PHI 370**
Contemplative Studies. This course will provide a survey of and an engagement with the contemplative, meditative, and ritual dimensions of world religious, spiritual, and philosophical traditions. Topics will vary, but may include contemplative practices from both Western and Eastern traditions, including CHOIstianity, Islam, Buddhism, Taoism, and Native traditions. We will read texts from authors within these traditions who explain and describe their understanding of contemplative practices – practices that have been historically at the center of these traditions. Through critical reading, discussion, and written reflection, students will be asked to consider the ethical and moral implications and outcomes of contemplative practices. This course will also include an experiential component through which students will be introduced to meditation, ritual, or other contemplative practices and may also include visits to local monasteries, groups, or gathering places of the traditions that we investigate. (3); Prerequisite: COM 115

**PHI 380/PSC 380**
Brain, Mind and Meditation. The Science and Practice of Mindfulness and Meditation: Meditation and other contemplative practices are increasingly used to reduce stress, improve health, and treat disease. This interdisciplinary course will discuss the neurobiological and psychological basis of these effects and

explore the relationship between the brain and the mind as revealed through the theory and practice of meditation. The course will consist of three integrated components. The first component will consider the scientific evidence demonstrating that meditation produces lasting changes in brain anatomy and function and review accumulating research data showing that meditation produces therapeutic effects in chronic pain, depression, drug addiction, and other psychiatric and physiologic disorders. The second component will explore the theory and philosophy behind meditative practices and contemplative techniques drawing from Buddhist and other traditions, used, traditionally, by religious practitioners and, in contemporary society, to reduce stress and improve health and well-being. In the third component of the course, students will be introduced to meditation and other contemplative methods so they can explore, personally, the effects of meditation on the mind. The course will be taught by specialists in neuroscience, religious studies, and mindfulness-based meditation. (3)

**PHARMACY**

**PHM 510** - Foundations of Pharmacy
This course provides dynamic introduction to the profession of pharmacy, formally introduces the concept of professionalism, and serves to initiate the professionalization of all students enrolled in the Doctor of Pharmacy degree program. This course is organized into three curricular units of instruction (Professional Identity Formation; Intro to Profession and Practice of Pharmacy; and Pharmacy Career Exploration). Weekly modules or units will be delivered via a blended model of synchronous online, asynchronous online, and in-person sessions. Learning Activities are designed to immerse students into the course content and interact with peers, and consist of readings, lectures, videos, self-directed literature retrieval, and creation of educational materials (such as written paper, slides, and infographics). Students will write reflections, summaries, and professional development plans; engage in peer interaction and group work through online discussion boards and breakout room exercises; and conduct independent research & learning modules on various topics such as interprofessional education, career exploration and foundational topics in pharmacy.This course is a prerequisite for the Introductory Pharmacy Practice Experiences (IPPEs). (2) Doctor of Pharmacy Students only.

**PHM 324** - Pharmaceutical and Biopharmaceuticals Industry Entrepreneurship
This course will provide an overview of the pharmaceutical/biopharmaceutical industry covering the following topic areas: research, development, clinical pharmacology, medical affairs, regulatory, marketing, sales, distribution, and ethics and compliance. Headquarters and field-based perspectives will be shared. The course will provide the student with an overview of the various types of pharmacy careers available within the pharmaceutical/biopharmaceutical industry in each of the listed topic areas. The course will be team taught by industry experts. The course will be coordinated by ACPHS faculty.

**PHM 329** - Self Care
This course will guide the student through an interactive approach to self-care with an emphasis on patient assessment and the clinical thought process. 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 discussed will include non-pharmacologic therapies, over-the-counter medications, herbal products, and dietary supplements. After completing the course, students will be able to determine if patients are self-care candidates and recommend appropriate self-care therapy.

**PHM 335** - Pharmacy Professional Development
This online course builds on concepts introduced in the required Foundations of Pharmacy course (PHM510). PPD offers students an engaging environment with ample opportunities for personal and professional growth, and development of practice skills. Curricular **units of instruction** include 1) foundational topic exploration (e.g., visual communication; social determinants of health; digital health education; medication safety, adherence, and health literacy; use of and writing for the pharmacy literature 2) critical reflection and professional identity formation, featuring co-curricular application; and 3) pharmacy career exploration, featuring interviewing a practitioner in the field and career of choice presentation accompanies by infographic visual. Course learning activities include preparing/delivering topic presentations in virtual classrooms; giving and receiving peer-review and communicating in writing through online discussion board interactions, preparing written topic paper, slides, and infographics; identifying, citing and evaluating primary literature; researching pharmacy career websites and interviewing a pharmacy professional in chosen pharmacy career; reading professional excerpts and engaging in critical reflection on professional identity formation; and developing course assignments using varied media, such as PowerPoint slides for presentations, Padlet for group discussion boards, and Zoom for online interactions. Modules have been carefully designed to provide the appropriate level of knowledge, practice, and application to support your achievement of the course objectives. The major graded assignments include verbal presentation; written papers and summaries; reflective exercises; interactive discussion boards; and **infographic** presentation; there are no quizzes or exams. Minimum of 8. Maximum of 16 students. (3) Prerequisite: Doctor of Pharmacy Students only.

**PHM 350, 450, 550**
Applied Methods in Epidemiologic Research. Students will develop problem-solving skills and enhance their knowledge of contemporary methods in clinical epidemiologic research through application. Students will participate in several activities that are both instructional and applied. Activities include introduction to basic topics in clinical epidemiologic research (measures of disease frequency/association, study design and handling bias), data collection, database management, data analysis, scientific writing and preparing abstracts/posters for presentation at conferences and manuscripts for publication in peer-reviewed medical journals. P1 and P2 students will participate in developing a research question/hypothesis, identifying appropriate study designs to test a hypothesis, protocol development and data collection. P2 students will continue the activities from the preceding year. P2 students will also create/manage an electronic database, compute basic measures of disease frequency, and perform quality checks on variables that could confound or bias the measure of association. P3 students will serve as project managers and assist in mentoring P1 and P2 students with data collection and database management. P3 students will also participate in data analysis and preparing an abstract/poster for presentation at a national meeting. The course does not have any underlying prerequisite coursework. However, interested students must contact the course coordinator expressing their intentions and undergo a brief interview. Selected students will be invited by faculty to participate in this course which can range from 1 to 6 credits.

**PHM 360**
Serving the Underserved I. Serving the Underserved is a 1-credit course offered to P1-P3 students with no prerequisites. The course is intended to assist students in overcoming barriers to healthcare on behalf of their patients. Through the use of interactive sessions and patient examples, students should be able to refer patients to appropriate resources or to use the resource themselves. The class will also

include activities that will highlight biases in providing care to patients. The overall objective is to provide a structure for the student to be an advocate for patients and their care. The course will be a stand-alone course. It will not overlap substantially with existing courses, including the US and Global Health Care Systems course. The elective will supplement but not reiterate existing courses. (1)

**PHM 361**
Serving the Underserved II. Serving the Underserved II is a 2-credit course offered to P1-P3 students that builds off the Serving the Underserved I course. This course is intended to increase the depth of knowledge of the materials covered in Serving the Undeserved I course, including insurances and overcoming patient barriers. It will also introduce new topics, such as health literacy. Both courses take a hands-on, interactive approach. Hopefully, the student will complete the course with the feeling that he or she has the ability to assist patients from a variety of backgrounds and with many different barriers to care. (2); Prerequisite: PHM 360

**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); Prerequisite: PHM 329

**PHM 435**
**Nephrology Patient Care**. This course introduces the delivery of patient-oriented pharmaceutical care in nephrology. Students gain an understanding of the chronic kidney disease (CKD) public health epidemic and will be able to identify key roles for pharmacists in managing CKD. Students will develop skills in identifying medication-related problems via patient case discussions that simulate real patient-care issues in nephrology. Complications of CKD, healthcare issues, and healthcare dilemmas will be introduced via group discussion and journal club. (3); Prerequisite: Doctor of Pharmacy P1 student

**PHM 472**
Women's Health Seminar. Women's Health Seminar will cover a broad range of topics relevant through the lifespan of women. This class will also foster inter-professional relationships by featuring guest lecturers with expertise in these topics. The focus in this class is to increase awareness and understanding of issues that women face and developing sensitivity to these issues. Participants in this class will also examine ways to further the profession in this field. Students will be expected to actively engage speakers through questions and discussion. Students will also be expected to do one presentation and several reflective and informative papers throughout the semester. (2)

**PHM 547**
**Critical Care:** This course exposes students to common intensive care conditions. The course will involve didactic lectures and interactive case-based discussions to refine their communication skills. Students will be expected to participate in active learning by collaborating in small groups to develop patient care plans. Under faculty facilitation, the students will discuss their care plans with the large group. Due to the complexity of critical care patients a one size fit approach is not feasible so students will refine critical thinking skills to manage these patients. By the conclusion of the course students will have a foundational knowledge in critical care pharmacotherapy and be aware of the role of the critical care pharmacist on an interdisciplinary team.

**PHM 548**

**Acute Care Pharmacotherapy**: This course is designed to explore a variety of clinical topics pertaining to therapeutic management of hospitalized patients. Acute Care Pharmacotherapy will introduce new disease states relevant to inpatient pharmacy practice and build upon students' knowledge of topics previously introduced in the pharmacotherapy series, promoting application of the therapeutic thought process to acutely ill patients. Examples of topics covered include pulmonary arterial hypertension, immunotherapies, solid organ transplant, introduction to pediatrics, and others. The course will utilize a hybrid format involving pre-recorded lectures and weekly in-person active learning sessions. Course activities and assessments include patient cases, journal clubs, drug information questions, and a formal case presentation. Through these activities, students will develop skills in written and verbal communication, critical thinking, small group collaboration, and scientific literature evaluation. This course will be particularly beneficial for students interested in hospital pharmacy practice and/or post-graduate inpatient residency training.

**PHM 551**

**Critical Concepts in Pain Management**: The opioid epidemic has highlighted the critical role of rational pain management in preventing patient harm, improving patient safety, and facilitating patient achievement of a functional, productive life. This Professional Elective is a 3-credit course offered only to P3 students that will build off of pathophysiologic, pharmacologic, and advanced problem-solving concepts that have already been taught in the curriculum. Course content will include pharmacotherapeutics and evidence-based strategies for management of acute and chronic pain, including pharmacological and non-pharmacological modalities, interventional pain techniques, and care of specialized populations including cancer pain, end-of-life, opioid use disorder, and rheumatological disease. The class will meet two days a week; one day with an interactive lecture and one day with small group complex case evaluations. Students will practice integration of evidence-based medicine into pharmacotherapeutic plans, presenting patient plans according to medical convention. Students will have the opportunity to obtain certification as a naloxone carrier during this course. This course is taught by ACPHS faculty and Albany Medical College physician faculty, with additional guest lecturers invited to instruct in their area of expertise.

**PHM 555**

**Geriatric Pharmacotherapy**: Geriatric Pharmacotherapy is designed to introduce students to the concepts of geriatric care and build upon knowledge from the pharmacotherapy sequence with a focus on older adult patients. The course will review physiologic changes and altered presentation of the elderly patient, geriatric syndromes, and pharmacotherapy in older adults. The course will utilize didactic lectures, case-based education, and therapeutic debates. Lessons taught in Geriatric Pharmacotherapy will follow related lessons in the required P2 and P3 PTPM course which will reinforce the pharmacologic and pharmacotherapeutic knowledge and principles. (3); Corequisite: Enrollment in required P3 PharmD curriculum or permission of the instructor

**PHM 580**

APhA MTM Certificate. The American Pharmacists Association national certificate program entitled Delivering Medication Therapy Management Services is an active learning seminar in which participants practice a variety of communication techniques to elicit a patient's medication experience and identify medication-related problems, using cases based on the real-life experiences of MTM providers. Participants will gain experience interviewing patients, identifying, and prioritizing medication-related problems, developing, and implementing interventions, and documenting activities. Participants explore

various business models and billing strategies and discuss plans for implementation. Pre-seminar self-study modules, a case study and hands-on patient interview prepare participants for the live session. After completion of 5 APPE cases, students receive their APhA Certificate. There is a separate fee associated with this course that will be added to the tuition bill. (1); Prerequisites: Doctor of Pharmacy Program P1 and P2 year and Fall of P3 year.

**PHM 718/719**
Independent Study and/or Research: PharmD Students may register for up to three credit hours per semester under a faculty member's supervision. The course content varies with the student and the project, according to the judgment of the supervising faculty member. Interested students with cumulative overall and professional GPAs of 2.5 or higher must submit a written plan for the independent study/research that will be approved by the faculty member and department Chair. This plan shall include the student's statement of the scope, learning objectives, outline of topics and learning activities, with faculty supervisor's description of how student performance will be evaluated within a timeline. Independent research should be a hypothesis-driven project that leads to written reports and/or oral presentations. Deadline for submission of the plan to the registrar is by the first week of the semester.

**PHM 911** - Orientation to Advanced Pharmacy Practice Experiences
This course provides students with information needed to prepare for selection and placement of their advanced pharmacy practice experiences (APPE). Students will meet experiential education personnel and learn about the different practice environments that they may consider for potential APPE options. Information presented during the course includes descriptions of required and elective module requirements, rotation assignments, goals and objectives for advanced pharmacy practice experiences, procedures for assignment to special arrangement rotations, midpoint and final evaluation procedures, and academic regulations. Activities in this course include preparation of a career development plan, updating resumes or CVs, and creating a student profile.

**PHYSICS**

**PHY 145**
Physics of Sound/Music. This course is a one-semester introductory level course that discusses fundamental scientific principles of waves, sound, and music. The concepts of energy, harmonic oscillation, resonance, harmonic analysis, interference, diffraction, traveling waves and standing waves are treated quantitatively. Relationship of physical characteristics of sound waves to loudness, pitch, and timbre is discussed. The course requires proficiency in algebra(intermediate level) and trigonometry (elementary level) and credit for a physics course at a high school level or above. (3)

**PHY 201/212**
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. PharmD students

register for PHY 212, BS students register for PHY 201. (4); Prerequisite: MAT 121. Lecture and Laboratory

**PHY 202/222**

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. PharmD students register for PHY 222, BS students register for PHY 202. (4); Prerequisite: PHY 201/212; Lecture and Laboratory

**PHY 245**

Physics for Life Sciences. This one-semester algebra-trigonometry-based introductory physics course discusses fundamental principles underlying physical phenomena. These principles form a foundation of our understanding of chemistry, biological and pharmaceutical sciences. Emphasis is on solving qualitative and quantitative problems using a variety of basic mathematical methods. The topics include kinematic description of motion; Newtonian dynamics; the concepts of work and energy; energy conservation law; mechanics of fluids; basic thermodynamics; introduction to nuclear physics. Recitations are conducted in relatively small, highly interactive classes designed to promote the development of problem-solving skills. The laboratory portion of the course complements its theoretical component and, in particular, familiarizes students with modern experimental techniques and skills including computerized data collection. (4); Prerequisite: MAT 111 or MAT 121; 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 202/222

**PHARMACEUTICAL SCIENCES**

**PSC 110 -** Scientific Reasoning and Analysis I
The courses (PSC110, PSC111 and PSC112) that make up the SRA sequence focus on historical and contemporary topics in science. Using a wide variety of communication formats, the essential elements of successful oral presentation and scientific writing to targeted audiences are analyzed. Scientific Reasoning and Analysis I is focused on the use of data to support hypotheses by evaluating historical examples of data utilization (both appropriate and inappropriate). Topics include Evolutionary Theory, Eugenics, and Viral Reassortment studies related to pandemics. The course emphasizes writing, revision, analysis, and the delivery of scientific information through short essay assignments. Upon completion of this course, students will gain a deeper understanding of the scientific mode of inquiry and how these principles help shape scientists. (2)

**PSC 111 -** Scientific Reasoning and Analysis II
The courses (PSC110, PSC111 and PSC112) that make up the SRA sequence focus on historical and contemporary topics in science. Using a wide variety of communication formats, the essential elements of successful oral presentation and scientific writing to targeted audiences are analyzed. Scientific Reasoning and Analysis II is focused on clinical milestones in science and medicine with an underlying theme of exploring historical and contemporary medical breakthroughs through an analysis of ethical implications. Topics include Unethical Experiments, the Use of Animals in Research, and the Complexities of the Modern Healthcare System. The course emphasizes weekly journal entries with group discussion on contemporary scientific publications as well as the development of individual "ideal" healthcare systems. Upon completion of this course, students will understand how to evaluate and disseminate current scientific knowledge as well as understand the challenges and promises of modern medicine. (2); Prerequisite: PSC 110 or permission of the instructor.

**PSC 112 -** Scientific Reasoning and Analysis III
The courses (PSC110, PSC111 and PSC112) that make up the SRA sequence focus on historical and contemporary topics in science. These courses will focus on the development of communication and critical thinking skills in addition to their scientific content. Scientific Reasoning and Analysis 3 is focused on literature review and oral communication skills. Acquired communication skills are further honed through group discussion, critique, and practice with an emphasis on the development of a review paper. Topics include Barriers to Scientific Communication, Criticism & Critique in Science, and a discussion of Alternative Careers in Science. Upon completion of this course, students will understand how to synthesize primary literature into a review-style paper that can provide a foundation for their Thesis studies. In addition, students will have sharpened their communication/presentation skills and will be well-prepared for their coursework in the later years of the Pharmaceutical Sciences program. (2); Prerequisites: PSC 110 and PSC 111 or permission of the instructor.

**PSC 115 -** Survey of Pharmaceutical Sciences
This course will introduce students to essential therapeutics by examining the discovery and development of drugs through the lens of pharmaceutical sciences. The history and application of major pharmaceutical sciences disciplines (i.e. pharmacology, medicinal chemistry, pharmaceutics, pharmacokinetics, bioanalytics) to therapeutic development will be explored using examples such as penicillin, Taxol, insulin, and others. Upon completion of this course, students will understand how pharmaceutical sciences provides a critical foundation to the healthcare professions. (1)

**PSC 205** – Principles of Pharmaceutical Analysis
Analysis of drugs, drug products, and biological samples is a fundamental aspect of pharmaceutical

sciences. Drug development, pharmacological studies, clinical trials, manufacturing processes, marketing, and therapeutic monitoring among others rely on precise analysis to provide the evidence necessary for appropriate actions. A diverse and ever-growing array of analytical methods is currently available to generate results. This course will present principles of major modern methods used for analysis of drugs. Additionally, underlying scientific principles and practical considerations relevant to pharmaceutical sciences will be discussed. (3); Prerequisites: CHE 111 and CHE 121.

**PSC 210** - Pharmaceutical Sciences Research Experience
This elective course will allow students to pursue a laboratory-based project. The student and research mentor will work together to define a series of experiments that will achieve the student's individual goals. This course may serve as an initial experience for a student to determine their level of aptitude and interest in pursuing research or, for more senior students, it will support a more detailed investigation of a defined hypothesis. The student will learn the necessary techniques, conduct experiments and analyze data under the guidance of the research mentor. Work on the project may or not be continued in subsequent offerings of Pharmaceutical Sciences Research Experience or, for BSPS students, through enrollment in the Thesis Option of the BSPS program. Students are expected to be actively involved in research or other laboratory work for a minimum of 125 hours for three credit hours of the course (42 hours/credit) and not more than 150 hours over the semester (50 hours/credit). Final grades will be assigned by the course coordinator. (1-6); Prerequisites: Permission of the instructor and course coordinator. Corequisite: Completion of PSRE Application form required.

**PSC 215 -** Pills, Potions and Poisons: A Pharmacology Primer
This course provides an introduction to the general principles of pharmacology. Students will study the discovery and use of different classes of drugs and toxins on various systems of the human body. Drugs of interest will include small molecule inhibitors, biologics, and gene therapies. Learn about new drug discovery and the development process. Gain an understanding of poisons used in crime, drugs pulled from the market, and mood-altering drugs. This course is designed for those interested in health care professions, basic scientific research and biotechnology. (3); Prerequisites: CHE 111 and CHE 121. Offered every other Fall.

**PSC 241 -** Introduction to Botanical Medicines.
Botanicals are one of the main sources of medicines. Many active pharmaceutical ingredients have been and are still being discovered or derived from botanical origins. Advances in sciences and technologies are enabling the maximal utilization of botanicals as therapeutics. This is an updated pharmacognosy course that introduce botanicals derived pharmaceuticals and toxins utilizing the best available sciences. This course covers the principles of botany, chemistry of natural products and metabolites, as well as the molecular mechanism of action, pharmacological effects, and potential toxicity of selected cases. Ethnopharmacology principles will be integrated through special topics and case studies to appreciate diversity, equality, and inclusion of botanical medicine practices, and discuss the global trend of harmonization. Learning modalities will include interactive lectures, discussions, written and oral reports. This course aligns and cooperates with optional co-curricular activities on campus, such as laboratory observations, medicinal garden projects and field trips. (3); Prerequisites: BIO 101/111, BIO 102/121, CHE 111 and CHE 121. Recommended but not required: CHE 211, CHE 221, CHE 311, CHE 415, PHY 201/212, PSC 321, PSC 341, PSC 371 and other related courses will enhance advanced learning.

**PSC 280 -** Introduction to Pharmacy Calculation
This course includes material where students work on basic and introductory calculations related to

pharmaceutics. This course will introduce students to basic and foundation- level math skills expanded upon in Pharmacy Skills lab I and II in order to allow students to gain expertise, mastery and confidence in these areas. (2); Pre-requisites: PSC 311 and CHE 221.

**PSC 309 -** Pharmaceutical Analytical Techniques 1
This team-taught laboratory course serves as an introduction to essential techniques that are foundational to pharmaceutical sciences and complements PAT2. BSPS students can use the PAT sequence as the basis for Capstone and technical training in lieu of Thesis Research. Techniques covered in PAT1 may include (but are not limited to) spectroscopy, chromatography, cell culture, molecular biology, and biochemistry. Operation, calibration, and potential applications of instrumentation related to techniques covered in PAT1 will also be explored. Completion of the experiments in PAT1 will enable students to acquire a strong foundation in laboratory skills and data analysis critical to the discipline of pharmaceutical sciences. (3); Prerequisites: BIO 101/111, BIO 102/121, CHE 111, CHE 121, CHE 211 and CHE 221. Required laboratory course for BSPS students.

**PSC 310 -** Pharmaceutical Analytical Techniques 2
This team-taught laboratory course serves as an introduction to essential techniques that are foundational to pharmaceutical sciences and complements PAT1. BSPS students can use the PAT sequence as the basis for Capstone and technical training in lieu of Thesis Research. Techniques covered in PAT2 may include (but are not limited to) HPLC, mass spectroscopy, dissolution/stability studies, active pharmaceutical characterization studies, and molecular modeling. Operation, calibration, and potential applications of instrumentation related to techniques covered in PAT2 will also be explored. Completion of the experiments in PAT2 will enable students to acquire a strong foundation in laboratory skills and data analysis critical to the discipline of pharmaceutical sciences. Prerequisites: Completion of the General Biology/General Chemistry/Organic Chemistry sequence. (3); Prerequisites: BIO 101/111, BIO 102/121, CHE 111, CHE 121, CHE 211 and CHE 221. Required laboratory course for BSPS students.

**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 different organs. (3); Prerequisites: BIO 101/111, CHE 111 and CHE 211.

**PSC 312 -** Molecular Biology
This course provides 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 intellectual development. In addition to canonical topics, specialized subjects such as dideoxy nucleotide 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 recommended.

**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 101/111, BIO 102/121 and PSC 311 or concurrent enrollment in PSC 311. Recommended but not required: BIO 210, CHE 311 and BIO 235.

**PSC 320** - Downstream Analysis of Biopharmaceutical Products
The course introduces the students to the principles of purification and analysis of biopharmaceutical products. Students will learn through active learning activities, including lab-based experiments, case studies, presentations, lectures, and group debates. The course will focus on downstream processing, including, (1) purification of biologics from microbial cells and mammalian cells, (2) scale-up strategies, (3) product analysis to ensure product purity, identity, and safety, and (5) principles of error prevention for risk mitigation. Through a combination of lectures and laboratory experiments, students will gain real-world experience downstream processing, including, cell disruption, separation, purification, and formulation technologies (homogenization, centrifugation, filtration, chromatography, TFF) used in the purification of biologics will be discussed with hands-on lab training. Upon completion of the course, students will demonstrate the ability to understand how biopharmaceuticals are purified and certified safe and effective. (3); Prerequisites: BIO 101/111, BIO 102/121, CHE 111 and CHE 121. Recommended but not required: CHE 211, CHE 221, BIO 235, PSC 309, PSC 310, PSC 311 and PSC 312.

**PSC 321** - Physiology/Pathophysiology I
This course sequence (PSC321, PSC322) 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 121 101/111 and BIO 102/121. Corequisite: PSC 311.

**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 101/111 121 and BIO 102/121. Recommended but not required: PSC 321.

**PSC 324** - Industrial Pharmaceuticals and Biopharmaceuticals Entrepreneurship
This course will provide an overview of the pharmaceutical/biopharmaceutical industry covering the following topic areas: research, development, clinical pharmacology, medical affairs, regulatory marketing, sales, distribution, ethics and compliance, and brand safety. Headquarters and field-based perspectives will be shared. The course will provide the student with an overview of the various types

of careers available within the pharmaceutical/biopharmaceutical industry in each of the listed topic areas. This course will be taught by a team of industry experts and will be coordinated by ACPHS faculty. (3).

**PSC 325** - Pharmaceutical Sciences Research Seminar
This 0-credit seminar course features monthly talks by both internal and external guest speakers consisting of an informal presentation followed by a question-and-answer session. The topics covered span the diverse scientific sub-disciplines related to Pharmaceutical Sciences and offer a valuable platform for the exchange of ideas. Importantly, these interactions are a vital element of student education, providing opportunities to explore various research fields and expand knowledge. All students enrolled in BS and MS Pharmaceutical programs are required to enroll in PSC325 each semester and attend all presentations. These seminars are open to the broader ACPHS community as well. (0).

**PSC 335** - Drugs of Abuse
This course provides a basic introduction to the neuropharmacology of licit and illicit psychoactive drugs. It will review the major classes of licit and illicit drugs, including alcohol, opiates (morphine, oxycodone), psychostimulants (caffeine, cocaine, amphetamine, khat), marijuana, hallucinogens (psilocybin, mescaline), MDMA, dissociative anesthetics (ketamine, PCP) and hypnotics (benzodiazepines). The course will focus on the acute and long-term pharmacological, psychological, behavioral and adverse effects produced by these drugs and explore the cultural, historical and religious context for their use. The neural mechanisms responsible for drug addiction will also be reviewed and both pharmacological and non-pharmacological treatments for addiction will be discussed. (3); Prerequisite: PSC 321. Offered every other Spring.

**PSC 341 -** Pharmaceutics I
This course studies the physicochemical principles of physical pharmacy and basic dosage forms. It integrates the physical, chemical and mathematical principles to introduce terminologies, theories, calculations and strategies of formulation design and quality control. The commonly used pharmaceutical ingredients, preparation methods, manufacturing approaches, and quality control strategies are also introduced. The modular topics include introductions to pharmaceutics, principles of solutions and dispersion products, preformulation, quality standards, and industrial approaches of new drug development and regulations. (3); Prerequisites: BIO 102/121, CHE 121, PHY 202/222 and MAT 111 or permission of the instructor. Recommended but not required: PSC 311, PSC 321 and PSL 331.

**PSC 342** - Pharmaceutics II
This course studies the pharmaceutical dosage forms and drug delivery systems, on the foundations of physical pharmacy and biopharmaceutics. It integrates and applies physical, chemical, mathematical, and biological principles to patient-centric drug products design. The commonly used pharmaceutical ingredients, preparation methods, manufacturing approaches, and quality control strategies are also introduced. The modular topics include principles of biopharmaceutics, topical and transdermal delivery, oral drug delivery and solid dosage forms; parenterals, sterile products, and biotechnology products; nasal and pulmonary drug delivery, specialty products, and advanced drug delivery systems. (3); Prerequisites: PSC 341 or permission of the instructor. Corequisite: PSC 321.

**PSC 369 -** Molecular Foundations of Drug Action I
This course explores the fundamental principles that define the relationship between chemical structure

and the biological action of drug molecules. A major focus of the course is the application of these chemical principles to biopharmaceutical properties of drugs and the molecular mechanisms of pharmacological activity. The relationships between drug structure, therapeutic properties, and physicochemical characteristics will be discussed. Structure activity relationships (SAR), structure-property relationships (SPR) and ADME (absorption, distribution, metabolism, and excretion) will be explored through case studies. Although an emphasis will be placed on orally bioavailable small molecules, various drug modalities will also be discussed. Since the material covered in this course is applicable to all of the drug classes, this course is a prerequisite for all of the PTPM modules. (3); Prerequisites: CHE 211 and CHE 221. Corequisite: PSC 311.

**PSC 370 -** Pharmacogenomics
This course, which follows MFDA I, covers the enzymes responsible for phase I and phase II metabolism of drugs as well as pharmacogenomics. The reactions catalyzed by phase I and phase II enzymes, as well as the regulation of the activity of these enzymes by a variety of factors, will be discussed. Genetic variation in phase I enzymes, phase II enzymes, drug transporters, and drug receptors will also be covered. Specific examples of differences in drug effects and toxicity in patients with different genetic backgrounds will be provided to introduce students to the application of knowledge of patient-specific genetic differences to achieve better therapeutic outcomes (personalized medicine). (2); Pre/Corequisites: PSC 311 and PSC 312.

**PSC 371** – Pharmacology I
This course is the first in a sequence of two pharmacology courses required for both PharmD and B.S. Pharmaceutical Sciences students. The course reviews clinically relevant topics in Pharmacology that are continued in Pharmacology II and lead into the PharmD Therapeutics sequence. Topics covered include principles of receptor and ligand interactions, dose response curves, pharmacokinetics (absorption, distribution, metabolism, and elimination of drugs), pharmacodynamics (mechanism of action, efficacy and potency of drugs), biotransformation of drugs, enzyme polymorphisms that affect drug action and elimination, and other factors affecting drug action (drug interactions. formulations and chemical properties). The course will additionally focus on clinically relevant drugs that affect the nervous systems (autonomic drugs, antipsychotics, antidepressants, analgesics, etc.) and the cardiovascular system (anti-hypertensives, diuretics, anti-dyslipidemics, anti-coagulants, anti-arrhythmic agents, etc.). The pharmacodynamics and pharmacokinetics of each clinically relevant drug class will be thoroughly considered. (3); Prerequisites: PSC311 and PSC369. Corequisite: PSC312.

**PSC 372** – Pharmacology II
This course is the second in a sequence of two pharmacology courses required for both PharmD and B.S. Pharmaceutical Sciences students. The course reviews clinically relevant topics in Pharmacology that are a continuation of Pharmacology I, leading into the PharmD Therapeutics sequence. Topics covered include: endocrine pharmacology (including glucose homeostasis, bone homeostasis, and the HPA axis), infectious disease pharmacology (including antibacterials, antifungals, and antivirals), oncology, eicosanoids, hematopoiesis, and inflammatory pharmacology (rheumatology, gout, and peptic ulcers). The pharmacodynamics and pharmacokinetics of each clinically relevant drug class will be thoroughly considered. (3); Prerequisite: PSC 371.

**PSC 409** - Capstone
The Pharmaceutical Sciences Capstone project allows upper-level undergraduate students to develop a hypothesis-based question evaluated through literature review. The project will culminate in a

manuscript similar to a published literature review and an oral presentation discussing the relevance, scope, and findings of the project. Student will identify a faculty mentor who will assist and guide the students in selection of literature, evaluation of data, and written manuscript completion. (3); Prerequisites: PSC 115 and PSC 309.

**PSC 410 -** BSPS Thesis I
This course is required for all Pharmaceutical Sciences B.S. students. Students will work with an identified faculty mentor to develop a thesis proposal. The proposal will provide appropriate background, hypothesis, specific aims, and methods for the thesis project. The written proposal will be no less than 5 pages in length (not including references). The proposal must be approved by the faculty mentor prior to final submission. Students will prepare and present a brief seminar of their thesis proposal (approximately 20 minutes in length). The faculty mentor will assign the Thesis I grade, which will be uploaded by the course coordinator. (3); Pre/Corequisites: PSC 110, PSC 111 and PSC 112.

**PSC 411** - BSPS Thesis II
This course is required for all Pharmaceutical Sciences B.S. students completing an undergraduate thesis project. Students will work with a faculty mentor to complete the research project proposed in PSC410. Completion of the research project will include both a final written thesis document and oral presentation of the major results from the student's work. The written thesis will be no less than 15 pages in length (not including references). The thesis must be approved by the faculty mentor prior to final submission. Student will prepare and present a brief seminar of their research findings (approximately 20 minutes in length) which can be given individually or during a sponsored research symposium (ex: the ACPHS Student Research Symposium). The faculty mentor will assign the Thesis II grade. (3); Prerequisite: PSC 410.

**PSC 441 -** Pharmacokinetics
This course presents concepts and mathematical techniques used to describe the time course of drug absorption and disposition of biological systems. Biopharmaceutical and pharmacokinetic principles used in the selection, dosing, monitoring and evaluation of drug therapy are introduced. These principles are applied to evaluation of drug literature and development of drug dosage regimens of selected classes of drugs for individual patients. (3); Prerequisites: PSC 341 and PSC 342.

**PSC 610G -** Technical Writing for the Biopharmaceutical Industry
The course is an advanced study in technical writing with a focus on writing for the biopharmaceutical industry. The course will provide information on various forms of writing documents in the industry including memos, proposals, formal and informal reports, Standard Operating Procedures (SOPs), batch documents, facility and environmental monitoring reports, validation reports and protocols. Regulatory requirements along with examples of documents reviewed by regulatory bodies will also be discussed. Emphasis is on understanding the differences between scientific and technical writing, including techniques for organizing, evaluating, and presenting information. Instruction will include writing as a process, from researching a problem to organizing and drafting a document to testing, revising, and editing that document. (2).

**PSC 620G** - Downstream Processing of Biopharmaceutical Products
The course introduces the students to the principles of purification and analysis of biopharmaceutical products. Students will learn through active learning activities, including lab-based experiments, case studies, presentations, lectures, and group debates. The course will focus on downstream processing,

including, (1) purification of biologics from microbial cells and mammalian cells, (2) scale-up strategies, (3) product analysis to ensure product purity, identity, and safety, and (5) principles of error prevention for risk mitigation. Through a combination of lectures and laboratory experiments, students will gain real-world experience downstream processing, including, cell disruption, separation, purification, and formulation technologies (homogenization, centrifugation, filtration, chromatography, TFF) used in the purification of biologics will be discussed with hands-on lab training. Upon completion of the course, students will demonstrate the ability to understand how biopharmaceuticals are purified and certified safe and effective. (3); Prerequisites: BIO 101/111, BIO 102/121, CHE 111 and CHE 121. Recommended but not required: CHE 211, CHE 221, BIO 235, PSC 309, PSC 310, PSC 311 and PSC 312.

**PSC 624G -** Industrial Pharmaceuticals and Biopharmaceuticals Entrepreneurship
This course will provide an overview of the pharmaceutical/biopharmaceutical industry covering the following topic areas: research, development, clinical pharmacology, medical affairs, regulatory marketing, sales, distribution, ethics and compliance, and brand safety. Headquarters and field-based perspectives will be shared. The course will provide the student with an overview of the various types of careers available within the pharmaceutical/biopharmaceutical industry in each of the listed topic areas. This course will be taught by a team of industry experts and will be coordinated by ACPHS faculty. (3).

**PSC 625G -** Clinical Biochemistry
Clinical Biochemistry is foundational to medical science and will help students develop an understanding of biological molecules and their relationship to common disorders. Using applications and clinical correlations, the course will reinforce the role of enzymes as building blocks of life and in catalyzing and regulating biochemical reactions within the body. The integration of various metabolic pathways, cellular metabolism, and biosynthesis with emphasis on the key concepts of structure and function of macromolecules involved in physiological processes will serve as the basis for an understanding of drug action and drug development. Biomolecular techniques related to clinical analysis will also be explored. This course will combine lecture discussion and assignments designed to enhance student learning. Upon the completion of this course, students will learn the applications and clinical implications of human biochemistry, the cellular basis for several common genetic diseases and metabolic disorders, and essential techniques related to clinical biochemistry. (3); Prerequisite: PSC 311. Clinical Biochemistry Spring semester course is for the Professional Master of Science, Post Bac, Pre-med and Master of Science students, and Bachelor of Science students in their final year.

**PSC 631G -** Foundations of Pharmaceutical Sciences
This introductory course is required for all Pharmaceutical Sciences M.S. graduate students. The course reviews foundational topics in Pharmacology, Pharmaceutics and Medicinal Chemistry, setting the stage for subsequent required and elective courses. 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, principles of computational modeling of receptor-drug interactions, and rational drug design. (3); Prerequisites: PSC 311, PSC 312, PSC 315 and PSC 321 or permission of the instructor.

**PSC 646G -** Regulatory Science
The course introduces the students to principles of regulatory science, specifically, how drugs and biologics are regulated. Students will learn through active learning activities, including case studies, presentations, lectures, and group debates. The course will focus on (1) origins of regulations, (2)

overview of FDA and FDA-regulated products, (3) regulation of drugs and biologics, (4) overview of drugs and biologics approval and commercialization process, and (5) where in the drug/biologics development and commercialization cycle GxP apply. In addition, students will learn the importance of regulatory strategies and FDA-expedited programs. Upon completion of the course, students will demonstrate the ability to understand how small-molecule drugs and biologics are approved and regulated. (3); Prerequisite: PSC 341.

**PSC 651G -** Pharmaceutical Sciences Journal Club
This course 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, present, and critique the articles. Each student will present at least two articles per semester. (1)

**PSC 661G -** Research Rotation
Students will complete a one semester laboratory rotation in order to facilitate the section 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 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 one (1) lab and a maximum of two (2) labs during the semester. They are to meet with the faculty advisor at least one hour per week for basic instruction 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); Prerequisite: Permission of program director.

**PSC 672G -** Experimental Design and Data Analysis
This course provides students with a basic knowledge of experimental design and biostatistics. Students will learn how to design experiments and analyze and interpret the results. Topics include confidence intervals, hypothesis testing power, nonparametric methods, and one- and two-way analysis of variance. Students will learn how to use computer software for many of the applications. (2)

**PSC 733G -** Pharmacology and Molecular Genetics of Cancer
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: Graduate standing or permission of the instructor.

**PSC 744G -** Special Topics in Pharmaceutics
This course is designed to allow students to 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 MSPS program director. (1-3); Prerequisites: PSC 645G or permission of the instructor.

**PSC 757G -** Quantitative Drug Design
The principles of subcellular pharmacokinetics are combined with the methods of estimation of drug-receptor binding energies for known and unknown receptors to provide a comprehensive quantitative approach to the construction of structure-activity relationships. The emphasis is placed on understanding the principles of quantitative descriptions of absorption, distribution, metabolism and excretion and drug-receptor binding in terms of drug structure and properties. The methods of prediction of the physicochemical properties of drugs, which are important in drug development, are analyzed in detail. (3); Prerequisite: Permission of the instructor.

**PSC 761G -** Thesis Research
This course 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 861G -** Capstone
The Capstone writing project is run as an independent study course. Students will select a topic in conjunction with the faculty instructor and prepare a written review of the existing scientific literature that is relevant to the chosen topic. The review should focus on a particular scientific problem that is actively being investigated and should define and discuss the scope of the problem, the alternative approaches that are being taken to address the problem, the substantive findings that have resulted from these approaches, and how these findings have shaped the current state of knowledge of the problem. (3); Prerequisite: permission of the instructor.

**PHARMACY SKILLS**

**PSL 511 Pharmacy Skills 1**
The Pharmacy Skills courses prepare Doctor of Pharmacy students to provide pharmaceutical care by encouraging them to practice skills used in the medication preparation, delivery, and patient monitoring. This series of six required courses is designed to instill values, attitudes and skills that enable lifelong intellectual, personal, and professional growth. Courses are designed as a progressive sequence as students continue to build on concepts throughout the series. Pharmacy Skills 1 is the first in the series of six required courses. The focus of this course is on pharmaceutical calculations and extemporaneous compounding of common dosage forms. Students will exercise critical thinking, communication, self-learning abilities, responsible use of ethics and values, and social interaction. The minimum passing grade is 70%.This course is offered by the Department of Pharmacy Practice, and faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. (2) Prerequisite: Doctor of Pharmacy Students only.

**PSL 512 Pharmacy Skills 2**
The Pharmacy Skills courses prepare Doctor of Pharmacy students to provide pharmaceutical care by encouraging them to practice skills used in medication preparation, delivery, and patient monitoring. This series of six required courses is designed to instill values, attitudes and skills that enable lifelong intellectual, personal, and professional growth. Courses are designed as a progressive sequence as students continue to build on concepts throughout the series. Pharmacy Skills 2 is the second in the series of six required courses and focuses on preparing the student to practice as a community

pharmacy intern. The focus of this course is on professional communication , medication dispensing, and non-sterile compounding with both pure powders and commercially available products. Students will learn fundamental federal and state law related to community pharmacy. The laboratory component allows practice of these principles and skills at the benchtop, in the mock pharmacy and in the private counseling rooms interacting with standardized patients. The minimum passing grade for this course is 70%. This course is offered by the Department of Pharmacy Practice, and faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. (2); Prerequisite: PSL 511, Doctor of Pharmacy Students only.

**PSL 521 Pharmacy Skills 3**

The Pharmacy Skills courses prepare Doctor of Pharmacy students to provide pharmaceutical care by encouraging them to practice skills used in medication preparation, delivery, and patient monitoring. This series of six required courses is designed to instill values, attitudes and skills that enable lifelong intellectual, personal, and professional growth. Courses are designed as a progressive sequence as students continue to build on concepts throughout the series. In Skills 3, previous concepts are reinforced, and the focus of this course is the compounding of sterile preparations. Students will become familiar with compounded sterile preparation and administration, calculations, IV equipment and USP Chapter 797 and USP Chapter 800 requirements. The laboratory component allows practice of these principles and skills. Skills 3 concentrates on preparing the student to practice as an institutional pharmacy intern. The minimum passing grade for this course is 70%. This course is offered by the Department of Pharmacy Practice, and faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. (2); Prerequisites: PSL 511, PSL 512, Doctor of Pharmacy Students only.

**PSL 522 Pharmacy Skills 4**

The Pharmacy Skills courses prepare Doctor of Pharmacy students to provide pharmaceutical care by encouraging them to practice skills used in medication preparation, delivery, and patient monitoring. This series of six required courses is designed to instill values, attitudes and skills that enable lifelong intellectual, personal, and professional growth. Courses are designed as a progressive sequence as students continue to build on concepts throughout the series. In Skills 4 previous concepts are reinforced and the focus of this course is on inter-professional and patient communication, practical calculations, and discharge counseling. Students will become familiar with medication preparation and distribution, formulary management, documentation, error prevention techniques and technology commonly seen in institutional settings. The laboratory component allows practice of these principles and skills. Skills 4 completes the students' preparation to practice as an institutional pharmacy intern. The minimum passing grade for this course is 70%. This course is offered by the Department of Pharmacy Practice, and faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. (2); Prerequisites: PSL 511, PSL 512, PSL 521, Doctor of Pharmacy Students only

**PSL 531 Pharmacy Skills 5**

The Pharmacy Skills courses prepare Doctor of Pharmacy students to provide pharmaceutical care by encouraging them to practice skills used in medication preparation, delivery, and patient monitoring. This series of six required courses is designed to instill values, attitudes and skills that enable lifelong intellectual, personal, and professional growth. Courses are designed as a progressive sequence as students continue to build on concepts throughout the series. In Skills V 5, previous concepts are reinforced and the focus of this course centers on advanced patient care. Students will learn how to

conduct a chief complaint focused history, perform targeted organ system-specific physical examinations, triage patients to the appropriate level of care, and develop appropriate treatment plans for commonly encountered disease states. Students become familiar with home diagnostic devices, monitoring devices including injectable devices and immunization updates. The laboratory component allows practice of principles and skills learned in lecture and integrates cumulative therapeutics knowledge through formative and summative, simulated patient assessments. Skills 5 concentrates on preparing the student for APPE rotations. The minimum passing grade for this course is 70%. This course is offered by the Department of Pharmacy Practice, and faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. (2); Prerequisites: PSL 511, PSL 512, PSL 521, PSL 522, Doctor of Pharmacy Students only.

**PSL 532 Pharmacy Skills 6**

The Pharmacy Skills courses prepare Doctor of Pharmacy students to provide pharmaceutical care by encouraging them to practice skills used in medication preparation, delivery, and patient monitoring. This series of six required courses is designed to instill values, attitudes and skills that enable lifelong intellectual, personal, and professional growth. Courses are designed as a progressive sequence as students continue to build on concepts throughout the series. Skills 6 is the capstone course that brings together all the previous knowledge and skills from the Pharmacy Skills sequence. The focus of this course is for students to demonstrate competency as they communicate, integrate, and apply previously learned knowledge, skills and abilities to identify, document, and / or solve individual patient's drug-related and medical problems. Assignments will be a review of calculations and compounding and support the work identifying and resolving patient related problems as well as supporting the general focus of improving pharmacist decision making processes. Pharmacy Skills 6 completes the students' preparation for APPE rotations. The minimum passing grade for this course is 70%. This course is offered by the Department of Pharmacy Practice, and faculty who facilitate discussions and demonstrations are licensed pharmacists that have practiced in a variety of health-care settings. (1); Prerequisites: PSL 511, PSL 512, PSL 521, PSL 522, PSL 531, Doctor of Pharmacy Students only

**PSYCHOLOGY**

**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

**PSY 440**
Death and Dying. This multidisciplinary course discusses empirically-based concepts related to death and dying. Topics covered include: cultural and historical differences in concepts of death, dying, grief, and bereavement; individual differences related to preparation, adjustment and coping; the impact of the circumstances of death on the bereaved; and death in the modern era (i.e., hospice and palliative care, physician-assisted suicide, media coverage of mass death, etc). Students are challenged to examine their own personal attitudes toward the issues discussed, including but not limited to psychological, medical, legal, ethical, religious, and cultural aspects of death, dying, grief, and bereavement. This course incorporates informational lectures, class discussions, small group activities, and individual projects designed to aid students in personally relating to the material. (3); Prerequisites: PSY 101, Junior or Senior Level Status/P1 or above

**PHARMACOTHERAPY, PHARMACOLOGY& MEDICINAL CHEMISTRY**

**PTP 410**
PTPM Respiratory. PTPM 2 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: PSC 369, PHM 329

**PTP 425**
PTPM Endocrine. PTPM 3 is a 2-credit course focused on the endocrine system. This is the fifth in a series of nine courses that examine therapeutic management of clinical disease states within an interdisciplinary sequence consisting of 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., endocrine diseases are the focus of this course). Taught by 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. Prerequisites: PHM 329, PSC 321, PSC 322, PSC 369, PTP 440

**PTP 431**
PTPM GI/Nutrition. PTPM 4 is a 2-credit course focused on the gastrointestinal (GI) system. This one in a series of 9 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); Prerequisites: PSC 369, PSC 370; PHM 329

**PTP 440**
PTPM Cardiovascular. PTPM Cardiovascular is a 4-credit course focused on the cardiovascular system. This course is part of the PTPM series that examines therapeutic management of clinical disease states within an interdisciplinary sequence consisting of pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapy. Building on concepts learned in Physiology/ Patho-physiology I & II and Molecular Foundation of Drug Action I, courses in this series are organized by therapeutic area (e.g. cardiovascular conditions are the focus of this course). Taught by both pharmaceutical 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: PHM 329,PSC321, PSC322, and PSC369

**PTP 446** - PTPM-ID
PTPM-ID 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 on 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.
Prerequisites: Molecular Foundations of Drug Actions (PSC 369), Pharmacokinetics (PSC441), Self-Care (PHM329)

**PTP 515**
PTPM Rheumatology Oncology. PTPM Rheum/Onc is focused on the therapeutic approach to rheumatic, hematologic and oncologic disease states. This is one in a series of modules that examine therapeutic management of clinical disease states in an interdisciplinary approach taught by both pharmaceutical science and pharmacy practice faculty, while building upon previous courses such as Immunology, Physiology/Pathophysiology I&II, Introduction to Pharmacology and Medicinal Chemistry. Course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics of rheumatic, hematologic and oncologic disorders. 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. Skill development in this course will prepare students for integrated problem-solving workshops, experiential education, and pharmacy practice. (3);
Prerequisites: PSC369, PSC370, PSC321, PSC322

**PTP518 Introduction to Pharmacotherapy/Self-Care**
The Pharmacotherapy sequence is a set of courses that examine therapeutic management of clinical disease states including discussion of clinical pharmacology and pharmacotherapy. Courses in this series are organized by therapeutic area. Course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics. 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 series, experiential education, and pharmacy practice.

This course will guide the student through an interactive approach to self-care with an emphasis on patient assessment and the clinical thought process. The foundation of the patient care process will

continue to be emphasized in the pharmacotherapy sequence as well as practiced in integrated problem-solving sequence (IPS). 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 discussed will include non-pharmacologic therapies, over-the-counter medications, herbal products, and dietary supplements. These OTC and supplements will serve as the backbone for various disease states where pharmacologic therapy is then expanded upon. After completing the course, students will be able to determine if patients are self-care candidates and recommend appropriate self-care therapy. Prerequisite: PHM510, Doctor of Pharmacy Students only.

**PTP520 GI/Nutrition/Endocrine**

The Pharmacotherapy sequence is a set of courses that examine therapeutic management of clinical disease states including discussion of clinical pharmacology and pharmacotherapy. Building on concepts learned in Pathophysiology 1 & 2, Molecular Foundations of Drug Action and Pharmacology 1 & 2 Principles of Pharmacology and Medicinal Chemistry, courses in this series are organized by therapeutic area. The PTP520 GI/Nutrition/Endocrine is a 3-credit course focused on the gastrointestinal (GI) and endocrine systems, and the nutritional principles relevant to each of these diseases. Taught by clinical faculty, course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics of GI disorders and 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. Prerequisites: PHM 581, PSC 321, PSC 322, PSC 369, PSC 371, PSC372, PTP 521, Doctor of Pharmacy Students only.

**PTP521 Cardiovascular Respiratory Pharmacotherapy**

The Pharmacotherapy sequence is a set of courses that examine therapeutic management of clinical disease states including discussion of clinical pharmacology and pharmacotherapy. Courses in this series are organized by therapeutic area. Course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics. 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 series, experiential education, and pharmacy practice.

This course is a prerequisite for the PT Endocrine/Gastrointestinal course (P2 spring) and the PT Nephrology course (P3 fall) based on scaffolded pharmacotherapy learning across various disease states (e.g., Diabetes Mellitus, Chronic Kidney Disease). This course has topics which are sequenced with concurrent learning in select weeks of Pharmacology II (e.g., asthma, COPD, select Endocrine therapies).

This course provides baseline knowledge and skills required for case-based learning in the concurrent Patient Care Workshop 1 (PCW521) required course. Prerequisites: Pathophysiology I (PSC321); Pathophysiology II (PSC322); Molecular Foundations of Drug Action (PSC369/PSC569); Pharmacology I (PSC371; PSC571); Introduction to PT/Self-care (PHM518), Doctor of Pharmacy Students only.

**PTP524 Infectious Disease Pharmacotherapy**

The Pharmacotherapy sequence is a set of courses that examine therapeutic management of clinical

disease states including discussion of clinical pharmacology and pharmacotherapy. Courses in this series are organized by therapeutic area. Course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics. 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 series, experiential education, and pharmacy practice.

This course specifically builds on the principles of pathophysiology, immunology, and pharmacology by exploring the clinical features and pharmacotherapeutic treatment of infectious diseases.

PTP-ID is a 3-credit course focused on the pharmacotherapeutic treatment of infectious diseases. Building on concepts learned in Physiology/Pathophysiology I & II, Pharmacology II, and concurrently with Immunology, this course discusses the spectrum of activity and appropriate use of antimicrobials. With a basis in antimicrobial stewardship principles, PTP-ID explores the presentation, diagnosis, and treatment of common bacterial, fungal, and viral infectious diseases. Prerequisites: PSC369, PSC441, PSC372, PTP518, Doctor of Pharmacy Students only.

**PTP 535 Nephrology/Toxicology**

The Pharmacotherapy sequence is a set of courses that examine therapeutic management of clinical disease states including discussion of clinical pharmacology and pharmacotherapy. Courses in this series are organized by therapeutic area. Course content is integrated to promote an analytical understanding of fundamental drug and disease concepts as well as practice-based therapeutics. 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 series, experiential education, and pharmacy practice.

Pharmacotherapy Nephrology/Toxicology focuses on care of patients with chronic kidney disease, acute kidney disease or injury, drug dosing in kidney disease, and care of patients with toxicologic emergencies or overdoses. Students will apply their knowledge of various disease states and complications to patient cases related to kidney disease. This course builds on information learned in the pharmacology sequence and previous PT courses, with emphasis on cardiology and diabetes. Prerequisites: PSC321, PSC322, PSC371, PSC372, PHM518, PTP52, Doctor of Pharmacy Students only.

**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. (2); Prerequisites: PSC 369, PSC 370, PTP 440, PSC 321, PSC 322

**PTP 528**
PTPM Genitourinary. PTPM 3 is a 2-credit course focused on the genitourinary system and examines 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 PTPM 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); Prerequisites: PSC 369, PSC 370; PSC 321, PSC 322

**PTP 549**
PTPM Neuro-Psychiatric Disorders. PTPM Neuro/Psych is a 4-credit course focusing on neurologic/psychiatric diseases. This is the last in a series of nine 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, 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); Prerequisites: PSC 369, PSC 370; PSC 321, PSC 322

**Sociology**

**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 every day, 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 120**
Introduction to Public Health. This course will offer an introduction to public health, history of public health and public health education, and a focus on population health/social determinants of personal and community health. There will be an overview of the health care delivery system, the necessary human resources, and other public health topics will be addressed.(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)

**SOC 290**
Undergraduate Research. This course provides an opportunity for students to obtain a hands-on research experience under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. SOC 290 is generally reserved for introductory level experiences and/or smaller scale projects. Students are expected to perform three hours of research related work per credit hour earned. (1-3); Prerequisite: permission of the instructor

**SOC 301**
Research Methods for the Social Sciences. This course provides students with exposure to a variety of research methods in the behavioral and social sciences. It will focus on the research process from crafting a research question to gathering data and analyzing the results through both quantitative and qualitative techniques. The course will emphasize applied research methods and we will develop skills in understanding and interpreting data. At the end of the course, students will have had exposure to a

broad range of data collection methods as applied to a variety of health issues and problems. (3); Corequisite: ETH 320

**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)

**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)

**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 be 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 330 -** Cultures of Disability
This course will address psychological, sociological and cultural perspectives on disability. Sociological and cultural perspectives focus on the social construction of disability, the policy, legal and medical aspects of living with a disability, as well as specific populations and how they experience disability. The course focuses on experiences and depictions of disability in the past, present and looks to the future, specifically in terms of the role of technology in the disability community. What does it mean to be "disabled"? What impacts a person's experience of disability? How is the health care experience different or the same for a person with a disability than a non-disabled person (e.g., communication challenges, living arrangements, role of a caregiver/health care proxy)? (3); Prerequisite: SOC 101

**SOC 335**
Global Health. In Global Health students study health in the world's least economically developed countries (LDCs) by examining how narrative, gender, culture, the environment, and economics affect health and health outcomes. This course facilitates a global perspective that helps students both to engage with the complexities of health in the world's LDCs and to improve overall cultural competency. (3); Prerequisite: COM 115, HUM 115 or permission of the instructor

**SOC 350**
Disparities and Social Justice. This course, generally, will take two approaches to understanding social identities as related to health and healthcare services. First, social identities (e.g., race, class, gender, sexuality, disability) and the related power structures (e.g., oppression, privilege, racism, sexism,

homophobia) are theorized. Then, students apply this knowledge to cultivate a richer understanding of healthcare disparities. Finally, the course moves towards creative correctives in healthcare advocacy, research in medicine and public health, and development of just and equitable healthcare policy that is informed by the background of these complex, often harmful, social forces. This complicated work integrates methods and research from multiple disciplines (e.g., humanities, feminist and critical race theory, social sciences, public health, disability studies, and biomedical sciences), and from Western and non-Western sources. This presents ethical issues relative to different methods of measuring health inequalities and related policies. (3); Prerequisite: SOC 101

**SOC 420**

Health and Social Policy. This course presents an introduction to health policy, i.e., the various ways in which the government plays a role in health and in the provision of health care. Health policies can impact quality of life in terms of accessibility, cost, quality of health care; safety of food, water, and environment; and the right to make decisions about our health. These issues are tied to health policies. (3); Prerequisite: SOC 101

**SOC 480**

Undergraduate Field Experience. The undergraduate field experience is designed to enable Health and Human Sciences students to gain valuable skills and experience in a variety of public health settings. Working in a voluntary capacity, you are able to select a site that provides an opportunity to gain insight and knowledge regarding your career interests and goals. Through this course students will gain valuable professional experience. Internships are obtained by the students with consultation from ACPHS faculty and staff. (1-9); Prerequisite: permission of the instructor

**SOC 490**

Undergraduate Research. This course provides an opportunity for students to obtain a hands-on research experience under the guidance of a faculty member. The number of credit hours and scope of the project undertaken are at the discretion of the faculty member involved. SOC 490 is generally reserved for more advanced research projects of students with prior research experience. Students are expected to perform three hours of research related work per credit hour earned. Faculty members may expect students to present their research in venues either internal or external to the college. (1-3); Prerequisite: permission of the instructor

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