ALBANY COLLEGE OF PHARMACY AND HEALTH SCIENCES

2026-27 COLLEGE CATALOG

DISCLAIMER

All information in this catalog pertains to the 2026-2027 academic year and is correct to the extent that the information was available, as of August 2026.

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 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.

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 College'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) 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 including 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

ACPHS holds accreditation from the Middle States Commission on Higher Education, 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 programs below are accredited separately. The length of each accreditation cycle is determined by the respective accrediting body.

Doctor of Pharmacy - PharmD

The College's Doctor of Pharmacy program holds accreditation from the Accreditation Council for Pharmacy Education, 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 2033.

Clinical Laboratory Sciences

The College's Clinical Laboratory Sciences programs hold accreditation from the National Accrediting Agency for Clinical Laboratory Sciences, 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, 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 2028.

Public Health

The College's Bachelor of Science in Public Health is accredited by the Council on Education for Public Health (CEPH), an independent agency established to accredit schools of public health and public health programs. CEPH is located at 800 I Street NW, Suite 4008 Washington, DC 20001.

BOARD OF TRUSTEES

Visit our Leadership Page for an up-to-date list of Board of Trustees members.

2026-27 ACADEMIC CALENDAR

Aug 17-21	Orientation Week
Aug 24	1st Day of Fall 2026 Term
Sep 7	No Classes/Labor Day
Oct 12	No Classes/Indigenous Peoples' Day
Oct 13	Classes Resume/Mon Sched
Nov 25-27	Thanksgiving Break
Dec 7-11	Final Exams
Dec 14-Jan 15	Winter Break
Jan 18	No Classes/MLK Day
Jan 19	1st day of Spring 2027 Term
Mar 1-5	Spring Break
May 3-7	Final Exams
May 15	Commencement
May 17-Jun 25	Summer Session, I Term
May 31	No Classes/Memorial Day
July 5- Aug 13	Summer Session II Term

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:
    a. Name and campus e-mail address - city, town or village and state or country of residence
    b. Class
    c. Anticipated date of graduation
    d. Major field of study, including the college, division, department, or program in which the student is enrolled
    e. Participation in officially recognized activities and sports weight and height of members of athletic teams
    f. The most recent educational institution attended, and previous educational institutions attended as well as dates of graduation therefrom
    g. Honors and awards received, including selection to a dean's list or honorary organization
    h. Photographic, video or electronic images of students taken and maintained by ACPHS
    i. Marital status and spouse's name
    j. 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

2026-27 TUITION

Below are the 2026-2027 tuition, mandatory fees, and additional costs for Albany College of Pharmacy and Health Sciences. The College's Board of Trustees approves these amounts annually.

Charges are listed on an annual basis unless otherwise noted.

Program	**Amount**
Pharmacy Early Assurance and BS Programs 1	$42,600
Professional Pharmacy Program, P1-P4 2	$49,300

Graduate (MS) Programs 3 Note: Reduced tuition for MS in Health Data Science (Spring 2026), Clinical Laboratory Sciences (Fall 2026), and Cytotechnology and Molecular Cytology (Fall 2026)	$1,640 per credit hour $1,200 per credit hour

STUDENT FEES

Fee Type	Fee Amount
Activity Fee – Full-Time Students 6,7	$350
Activity Fee – Part-Time Students 6,7	$99
Course Fees 8	Varied
Graduation Fee – For graduating students only	$100 (per degree)
Health and Wellness Fee – Full-Time Students 6,7,9	$300
Health and Wellness Fee – Part Time Students 6,7	$130
International Student Fee	$200
Lab Fee, per lab course	$100
Meal Plan 4	TBD
Orientation Fee – New and Transfer Students 6,7	$350 (one-time fee)
Program Fee – MS Biomedical Sciences 10	$1,200 (one-time fee)
Student Health Insurance Fee 5	$3,704
Technology Fee – Full-Time Students 6,7	$280
Technology Fee – Part-Time Students 6,7	$130

PARKING PERMITS

Fee Type	Fee Amount
Albany Commuter	$280
Campus Resident	$360

HOUSING

Fee Type	Fee Amount
South Hall	$7,100
Holland/Princeton Suites – 2 Bedroom	$8,400
Holland/Princeton Suites – 4/5 Bedroom	$7,600

Resident Activity Fee	$40

Tuition & Fees Descriptions

1. Applies to two Pharmacy Early Assurance Program years and all years of the BS programs. Pharmacy Early Assurance and BS tuition is charged at a rate of $1,420 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 Doctor of Pharmacy program. This represents the third-sixth years for students who enter ACPHS from high school. The P1-P4 tuition is charged at a rate of $1,640 per credit hour on a part-time basis (eight credit hours or less). The full-time (nine credit hours or more) tuition charge is $24,650 per semester. The auditing fee is the same as that charged for part-time coursework.
3. Tuition is charged at a rate of $1,640 per credit hour for graduate courses. The maximum total per semester is $24,650, 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. The amount will vary based on the choice of meal plan. All students in South Hall are required to purchase the Gold Meal Plan.
5. Assessed to all students unless proof of other insurance is provided by the August 27, 2026, deadline.
6. Non-refundable after the first day of classes.
7. Required.
8. Courses with additional fees: PHM541, PHM580, PHM585, PSL431, PSL432, PSL531, PSL532
9. P4 students may opt into the health and wellness fee.
10. Master of Science in Biomedical Sciences students will be charged a $1,200 program fee which covers the registration charge for an entrance- exam prep course matching the student's career goal, professional advising in the health sciences, Medical Professions Advisory Committee review, advice regarding health professions applications, and the creation of composite letters.

- **Financial Aid Information**
  https://www.acphs.edu/admissions/financial-aid

- **Scholarships, Grants and Loans**
  https://www.acphs.edu/admissions/financial-aid/scholarships-grants-and-loans

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 accommodation.

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 expected of courses which fulfill the 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 six 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.

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 the Office of Student Experience along with supporting medical documentation from their health provider. The Office of Student Experiences will notify their instructors and triangle of success in 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 by 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. If 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.

Course Concerns Procedure

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

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.

If the concern is not resolved satisfactorily with the faculty member, consult with the course coordinator.

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 10 (two-thirds of the semester), students are allowed to withdraw from a course only with permission from the course instructor.

Withdrawals after this deadline will only be granted under documented extenuating circumstances and must be approved by the Office of Academic Affairs.

School of Health Sciences students and those in the BS or MS in Pharmaceutical Sciences program must initiate the course withdrawal request, obtain faculty advisor signature, program director signature, and submit the request to the Registrar before the deadline. PharmD students must do the same except obtain approval from the assistant dean for academic's signature.

Students receiving financial aid, veterans' benefits, or enrolled in programs with specific progression policies (such as the PharmD program) should consult with the appropriate office to understand implications of withdrawal.

Courtesy Attendance in Classes

Courtesy attendance of ACPHS courses is allowed on a space-available basis. This type of attendance is open to students at 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 of attendance is determined to be detrimental to the educational environment of the class, the attendee may be requested to stop attending.

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 U.S. Department of Education (included below) upon which the details of this policy are based. The U.S. 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, Tuesday, 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 (e.g. in Vermont).

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.

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.

Distance Learning Verification

Secure Passwords

ACPHS utilizes secure passwords to ensure only authorized access to student accounts. All students are assigned a username and temporary password when they join the ACPHS computing community. Students then select a password that abides by the College's password guidelines. Consistent with the College's computing policy, students must take all reasonable precautions, including appropriate password maintenance, to prevent use of their account by unauthorized persons. Students must not share their password with anyone else or provide access to ACPHS network resources to unauthorized persons. As an additional measure of security, students are required to utilize multi-factor authentication when logging into the College network.

Verification of Identity of Distance Learning Students

The Higher Education Opportunities Act requires an institution that offers distance education to have processes

through which the institution establishes that the student who registers in a distance education course or program is the same student who participates in and completes the program and receives the academic credit.

The College uses Canvas as its Learning Management System (LMS) for both on-campus and distance learning courses. As students access Canvas through secure single sign on through the ACPHS network, access to all distance learning courses, materials, and assessments are subject to the security protections of the College's password system and enforcement mechanisms contained in ACPHS's Computer Use Policy. In addition, faculty teaching distance learning courses are encouraged to consider the following practices that promote behavior consistent with academic integrity:

- The administration of periodic exams that require students to come to campus
- The use of remotely proctored exams
- The use of technologies designed for this purpose
- Using a variety of assessments including those that are unique to the course and that encourage academic integrity (i.e. essays, long answer questions on exams, other assessments conducted face-to-face with faculty)
- Paying particular attention to changes in a student's academic performance, writing style, language, or LMS access times that might indicate violations of the Academic Integrity Code

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.

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. Any incomplete must be completed by the end of the following semester. If the outstanding requirements are not complete, the grade will be adjusted to the grade on the incomplete form. Students cannot graduate with an Incomplete grade on their record.

Individualized Reassessment and Remediation Policy (School of Pharmacy)

The Individualized Reassessment and Remediation policy and procedure is intended to provide the PharmD student (P1-P3 years) who is not academically successful in a course with an additional opportunity to demonstrate success and progress in the curriculum without disrupting their course of study. Students unsuccessful in a course due to untoward conduct, behavior, and/or professionalism (including but not limited to violation of course attendance, missed assignment policy, etc.) are not eligible to participate. Full details regarding this policy can be found on the SOP Student Canvas page.

Leave of Absence Procedure

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 their Program Director. For leave, the request must state the reason(s) for the leave, the desired duration, and supporting documentation. The program director will coordinate the paperwork, documentation, and plan for the student's return date.

Non-matriculated (Non-degree Seeking) Student Policy

Non-matriculated status permits students to take courses to explore degree options, for personal enrichment, professional development, or fulfilling degree requirements for another institution, which would include cross-registration. Non-matriculated status is reserved for students who are not seeking a degree at the time of entry.

Non-matriculated students do not follow the admission requirements of matriculated students. The non-matriculated student status is designed to allow any interested individual to attend college credit

courses without declaring a major or seeking a degree. Students must have the prerequisites for any course they wish to register for, permission of the instructor and permission of the Associate Dean of Student Academic Support.

Due to visa requirements, International students are not eligible for non-matriculated status. Non-matriculated students do not receive federal or institutional financial aid.

Students may register up to a maximum of 12 credits as a non-matriculated student. If they wish to continue courses at the College, they would need to apply for matriculated status through the appropriate admissions process. For further information regarding registration for non-matriculated students, please contact the Registrar's office.

Religious Accommodation Policy

Every student has the right to pursue their education while practicing their faith. New York State law requires campuses to excuse, without penalty, individual students' absences due to religious beliefs and to provide equivalent opportunities for makeup exams, study, or work requirements missed due to these absences. To request religious accommodations, contact your course instructor(s) directly, and give them sufficient time to make the accommodation. Instructors should work directly with students. Whenever possible, instructors should not schedule exams, presentations, or major due dates on major religious holidays. When scheduling conflicts are unavoidable, instructors should give students the opportunity for an equivalent makeup exam.

Student Conduct Suspension and Expulsion

See 2026-27 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.

Transfer Credit

See Agreements and Policies

Waiving Course Prerequisites

Waiving the prerequisite requirement(s) can only be granted if written/electronic approval from the course coordinator is received by the Registrar's office. Satisfying pre-requisites using similar courses from other academic institutions must receive prior approval from the ACPHS course coordinator. To waive PharmD courses, you must get the approval of the assistant dean for Academics.

Withdrawing from the College

A student who is withdrawing from the College must complete the College Withdrawal Form 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 and

meet with their program director. At the discretion of the program director, a grade of “W” may be assigned to courses or course instructors may be asked to assign a grade.

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** Produce and analyze written language in English within the conventions and genres of a particular discipline. Utilize grammar, writing conventions, and discipline-specific genre to facilitate and convey meaning. Create purpose-driven compositions, taking into account diverse audiences. Demonstrate use of the writing process including pre-writing, drafting, and revision. Selectively incorporate and correctly attribute other peoples' ideas and writing. Identify the thesis or purpose of a text 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 Use numbers and other symbols to understand and express quantitative relationships, employ quantitative methods, and draw inferences from mathematical models. 2.1 Provide accurate explanations of information presented in mathematical forms. 2.2 Competently convert relevant information into appropriate mathematical forms (e.g., equations, graphs, diagrams, tables, words). 2.3 Complete calculations to comprehensively solve problems. 2.4 Use the quantitative analysis of data as the basis for judgments, drawing reasonable and appropriate conclusions from this work.
	Scientific Literacy 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. 3.1 Utilize relevant observations for problem investigation. 3.2 Construct an appropriate method of inquiry, developing a detailed hypothesis to include pertinent facts, considering multiple points of view.

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

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.

Define the scope of the information need.

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.

Determine appropriate keywords and related search terms, developing and executing effective search strategies using appropriate tools.

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.

Acknowledge the original ideas of others through proper attribution and citation.

Technological Literacy

Apply appropriate computing tools and electronic resources to address specific tasks related to data storage, presentation of information, and organization.

Select the most appropriate tool(s) and technology to address a specific task.

Describe the basic security issues with various types of information, information use, and information devices.

Use online and electronic resources to communicate and collaborate.

Use technological resources and applications to support personal, academic, and professional productivity.

Use technology to create presentational content that is equally accessible.

Cultural Literacy

Explain the diversity within and among cultures and human experiences and summarize its impact on the individual and society.

Demonstrate and explain the need for further study of other cultures by creating and seeking answers to additional pertinent questions

Describe own cultural rules and biases and both identify and articulate the value in bringing new perspectives to those rules and biases.

Analyze intellectual, emotional, and material elements important to members of at least one other culture.

Social Justice, Equity, and Responsibility Literacy

Describe how social structures produce inequalities in group outcomes, and identify, evaluate, and consider how various policies and practices alter these outcomes.

Describe how various elements inherent to one's own culture and to other cultures have historically been privileged or undervalued.

Analyze at multiple levels (e.g., individual, group, community) the impact of history, culture, institutions, practices or policies on diversity and equity issues.

Analyze the impact of potential equity strategies on affected groups in relation to a specific equity issue.

Explain the potential for the power of diversity to serve as a source of creativity, innovation, and productive collaboration.

Civic Literacy

Analyze complex issues that have public consequences, participate in democratic discourse, and identify opportunities to help individuals and improve public policy.

Analyze knowledge (facts, theories, etc.) from an academic study/ field/discipline, making relevant connections to civic engagement that has public consequences.

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.

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

	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. Develop an organizational pattern that enhances the cohesion of the message. (i.e., specific introduction and conclusion, sequenced material within the body, and transitions) Choose language that is imaginative, accessible (e.g., translating jargon), and inclusive. Project confidence via delivery techniques (e.g., volume, eye contact, hand gestures, facial expressions, posture, movement, expressiveness, and speed). Use visual communication that supports the effectiveness of the message (e.g., slides data visualization, diagram, photograph, illustration). Practice active listening (e.g., attentiveness, open-mindedness, and literal/critical comprehension) during oral presentations, performances, and/or groupwork.

GELOs - Competencies

	Defined as:
Competencies	**<u>Critical Thinking and Creative Problem Solving</u>** 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. Describe the problem and assess information from multiple sources. Develop an objective and comprehensive analysis, considering assumptions and biases. Create a novel idea, question, approach, or product to address the problem. Resolve problems by applying logical reasoning to determine appropriate pathways for effective solutions.
	<u>Values and Ethical Decision-Making</u> 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.

	Analyze core beliefs and their origins at the individual and/or group level. Identify questions about ethical/moral issues or value judgments questions when presented in a complex, multilayered context. Apply principles to the solution of an ethical/moral issue or question. Evaluate responses to ethical/moral issues or questions (objections, responses to objections, assumptions, implications).
	Collaboration Work effectively with others towards a common goal by engaging diverse perspectives and building consensus. Explain how social and professional roles create distinct perspectives and priorities that shape our approaches to collaboration. Integrate social skills (active listening, empathy, self-awareness, tactfulness) to cultivate an inclusive environment where people are comfortable sharing and discussing disparate viewpoints. Integrate decision-making processes and conflict management strategies to negotiate solutions that satisfy disparate interests.

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 is 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.

Academic Standing

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.

Bachelor of Science (BS) Programs: Requirements for Graduation
Students in any BS program must earn a minimum cumulative GPA of 2.0 to be eligible 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.

Academic Standing - 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. Specific for Bachelor's in CLS: Attain and maintain the College standard of semester and cumulative GPA of 2.0 in the first two years of the curriculum. Starting in year three (the first professional year), students are subject to both College-wide standards and the CLS specific standards below: Maintain a semester and cumulative professional GPA of 3.0. 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. Professional courses with a grade below C (73%) must be repeated. In order to begin clinical practicum rotations students must have:	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. Professional GPA is determined using grades earned in all professional courses. Professional courses with grades below C- must be repeated. Progression in Experiential Education: Students must be in GAS to progress into their Community, Institutional, and Team Based Care IPPEs. 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. Rescheduled IPPEs may result in a delay in graduation. Students must successfully complete the entire pre-APPE curriculum, including IPPEs,	Cumulative GPA of 3.0 or higher and be free of any probationary status; Required Courses: Students must earn a grade of B or better in all required graduate courses; 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; 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. All courses, whether accepted toward graduation credit or not, are recorded on a student's transcript and count in GPA calculations.

Passed all required courses numbered 399 and lower. Completed all professional courses numbered 399 and lower with a grade of C or better. All grades below C must be repeated. Have a professional GPA of 3.0. Clinical rotations are considered professional courses and must be completed with a C or better. Any rotation below C must be repeated. One grade of F results in program probation; two grades of F may result in dismissal from the program. See Progression into the P1 year and non-progression below.	and be in GAS to progress into the APPEs. Note: Violations of the Conduct Code, Professionalism Code, and/or Academic Integrity may prevent students from progressing into and through the Experiential Education curriculum.	

Progression into the P1 Year

Students enrolled in the BSPK or BSPB 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.
- 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

Doctor of Pharmacy Non-Progression

Review of Non-Progressing Early Assurance Students by the PAASC (Pharmacy Admissions and Academic Standards Committee)

PAASC

- The academic records of early assurance students not meeting the course, GPA, or interview requirements for automatic progression into the P1 year, outlined above, but who have met all of the other criteria are reviewed by PAASC 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 considerations. The committee may recommend one or more of the following conditions for progressing into the P1 year:
- Repeat one or more courses during the summer months prior to entering the P1 year
- Students may be required to earn minimum grades in repeated courses or to take courses at ACPHS when available
- Communication improvement plan that may include one or more of the following: a writing course, a writing program, working with the Writing Center, other
- 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 their current BS 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

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

ACADEMIC STANDING AND PROGRESSION

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.

College-wide (Bachelor's)	PharmD (P1-P4)	Master's
A student will be placed on academic probation if any of the following conditions exist within a semester:		
A semester or cumulative GPA below 2.0; Two or more grades below C-; A single grade of F. Specific for BSCLS: If semester or cumulative professional GPA drops below 3.0. Two program probations may result in dismissal from the program.	A cumulative professional GPA below the thresholds listed in the table below, by semester: End of Fall P1 — 2.0 — End of Spring P1 — 2.1 End of Fall P2 — 2.1 — End of Spring P2 — 2.2 End of Fall P3 — 2.2 — End of Spring P3 — 2.3 End of Fall P4 — 2.3 — To Graduate Spring P4 — 2.5 Any grade point average (GPA) below 2.0 (semester, professional semester); a single grade below C-.	• 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 • Unsatisfactory progress towards completion of thesis research or capstone project Specific for MSCLS* students: • If semester GPA falls below 3.0 and/or cumulative professional GPA below 3.0 • *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. See Probation process below.
Removal from Academic Probation for Bachelor's and PharmD Programs:		

Academic probation will end when the student successfully addresses all of the conditions that placed the student on probation.	

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 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

Probation Process for PharmD Students

1. PAASC will render final decisions and share them with the assistant dean for Academics and dean of Pharmacy.
2. Students placed on academic probation by PAASC will be informed by the Dean of Pharmacy's Office.
3. The assistant dean for Academics, in conjunction with the Pharmacy Academic Progression Committee, will review each student's academic record and develop a curricular plan for the student to complete outstanding, deficient, and future courses. Students with a significant number of outstanding and/or deficient courses may have an extension in their original graduation year. PharmD students placed on probation will be required to complete the Academic Success for Pharmacy Students (PHM001) course. Students are required to follow the curricular plan created by the Pharmacy Academic Progression Committee. Any requests

to modify this plan must be approved by the assistant dean for Academics. If the assistant dean for Academics declines a student's request to modify their curricular plan, they may appeal to the dean of Pharmacy, whose decision is final.

4. The assistant dean for Academics will communicate the plan developed by the Pharmacy Academic Progression Committee with the student's Triangle of Success.

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 is 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 transferring 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: Two instances of probation (whether consecutive or non-consecutive) A semester GPA below 1.6	*Dismissal from the program for any of the following reasons below:* Two instances of probation (whether consecutive or non-consecutive) resulting from didactic or experiential coursework in the Doctor of Pharmacy program 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:* Failure to correct deficiencies of academic probation in a timely manner (see above: "*Removal from Academic Probation*") Two independent instances of being placed on academic probation. Two failures of the thesis defense or two failures of the capstone project. Receiving a grade of F in any required graduate course or grades of B- or below in two or more required courses. Failure to meet Programmatic requirements in the timeframe designation for program completion. ***Other requirements:*** • Full-time graduate students must complete all program degree requirements in 3 years or less • Part-time graduate students must complete all program degree requirements in 7 years or less • 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. Use the following process and forms.

The PAASC is responsible for the oversight of academic standards for all School of Pharmacy programs - bachelor's (BS), PharmD and graduate (MS) programs. The Health Sciences academic standards committee (ASC) is responsible for the oversight of academic standards and the academic standing of students for all programs in the School of Health Sciences – bachelor's (BS) 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 respective standards committee (PAASC or 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 PAASC or ASC communicates decisions to the registrar respective dean in writing. The registrar respective dean's office 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 PAASC and ASC. Grade reports of all students on academic probation from the previous semesters are also provided to the PAASC and ASC.

The PAASC and ASC make 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 probationary 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 ASPC at academicappeals@acphs.edu. The appeal letter should clearly describe the basis for the appeal and should include:

- Explanation/justification surrounding the student's inability to meet the college-wide or program academic standards
- Appropriate documentation by a competent, qualified professional in the event extenuating life circumstances are identified
- The college reserves the right to require further evaluation and/or documentation
- 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 (ASPCC) 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 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 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:

- 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
- Meet with the program director of the program you wish to transfer to discuss curricular options, review course credits, and plan your degree path
- Consult with Financial Aid to discuss potential financial aid implications of transferring to another program

Once an appropriate plan is determined, complete the Internal Transfer Form which can be obtained from your program director. 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. See PharmCAS 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 PharmaPAASCcy Admissions Committee will make a determination regarding admission, including conditional acceptance, and work with the program director and assistant dean for Academics for class year placement for students dismissed from the program in the P2, P3 or P4 year. Contact the Admissions office for further information.

EXPERIENTIAL EDUCATION

The experiential education component of the PharmD program is the opportunity for you to step out of the classroom and academic laboratory into a variety of real-world practice settings, putting the knowledge you have gained to use in hands-on pharmacy practice experiences. These experiences, also known as rotations, make up 30% of the pharmacy curriculum. The College has practice experiences at approximately 500 pharmacy and clinical sites, including community pharmacies, hospitals, ambulatory care clinics, research laboratories, managed care facilities, specialty pharmacies, academia, government agencies and the pharmaceutical industry. These experiences not only expand your knowledge of pharmacy but often lead to opportunities post-graduation. Learn more about ACPHS experiential education.

INTRODUCTORY PHARMACY PRACTICE EXPERIENCES (IPPES)

IPPEs are designed for pharmacy students in their first three professional years of the PharmD program. When you enter your final professional year, you will gain 320 hours of hands-on practice experience by meeting the IPPE requirements detailed below. Each pharmacy student is required to complete three rotations, which total eight credits and 320 hours. All IPPE requirements must be met prior to beginning APPEs (see below) and must be completed in the United States or its territories (in accordance with ACPE standard 13.8).

ADVANCED PHARMACY PRACTICE EXPERIENCES (APPES)

APPEs are hands-on experiences designed to build upon the academic base obtained in the classrooms, laboratories and IPPE portions of the PharmD program. Starting in May at the beginning of the final professional year, students complete seven APPE rotations (five core and two electives), each six weeks in length (42 weeks total). One week of an APPE is equal to one semester hour of academic credit (for a total of 42 credits). APPEs are scheduled by the college and typically require students to be at the practice site for a minimum of eight hours daily.

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. Learn more about the ACPHS Library.

RESEARCH OVERVIEW

Research is a core component of 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. ACPHS holds a Carnegie Research College/University designation, and research remains central to academic life at the College.

Faculty, staff and students pursue work in infectious disease, oncology, nephrology, and public health, along with health care–related research into patient-provider communication, medication adherence, and outcomes data. This work is supported by funding from the NIH, NSF, New York State, the pharmaceutical industry, and private foundations, and is coordinated through the Office of Research and Sponsored Programs, led by Director Joseph J. Carreno, PharmD, MPH. The Stack Family Center for Biopharmaceutical Education and Training offers additional research and training opportunities. Students participate at every level: undergraduates through independent studies, student research award programs, intramural grants, and paid research assistantships, and graduate students through thesis work and graduate research fellowships. For more information on research contact ORSP@acphs.edu.

IMMUNIZATION REQUIREMENTS FOR ATTENDANCE

Vaccine-preventable diseases are a major health concern on college campuses. Since immunization is widely regarded as one of the world's most effective tools for protecting public health, ACPHS 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
    b. Self-reported or parent recall of meningococcal meningitis immunization within the past five (5) years, signed by the student or the student's parent or guardian; or
    c. 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 2-dose 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.

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.

Immunization Requirements for Attendance

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 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

Technical standards for the Cytotechnology program and profession require an eye exam (including test for color-blindness) for visual acuity. The exam needs to be signed and completed by a physician or ophthalmology technician.

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.

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 day30-day grace period has elapsed. The 30 day30-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.

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 60 days elapse.

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 at Experientialed@acphs.edu.

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.

STUDENTS ON EXPERIENTIAL ROTATIONS

Experiential rotations are designed to build on students' academic base and provide them with a wide exposure to various pharmacy practice/clinical laboratory/cytology experiences 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 experiential rotations must have the documentation below (TB screening, PE, and seasonal influenza vaccination) completed within a specific timeframe 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 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.)

Rotation sites hosting experiential rotations may deny a student's participation in the 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.

PHYSICAL EXAM: An annual physical exam, valid for a 12-month period, is required.

TUBERCULOSIS (TB) INFECTION SCREENING (TUBERCULIN SKIN TEST [TST]/MANTOUX or QUANTIFERON BLOOD TEST/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. A Quantiferon blood test is recommended for those PPD+.

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.

ADDITIONAL ROTATION REQUIREMENTS

Some rotation sites have additional requirements that must be completed prior to starting that specific rotation (e.g. antibody titer as opposed to proof of vaccination, drug screen and background check). These additional requirements are communicated to the student in advance of the rotation by Experiential Education staff.

It is the student's responsibility to ensure the requirements are met prior to commencement of the rotation. If they 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 may be rescheduled for a later rotation and placed at any available rotation site (not necessarily the choice of the student).

DEGREE PROGRAM CURRICULAR GRIDS (LINKED IN PROGRAM NAME)

UNDERGRADUATE DEGREE PROGRAMS

Program	Program Director or *Chair
Bachelor of Science in Biomedical Sciences	Kelly Hallstrom
Bachelor of Science in Biotechnology	Payel Datta
Bachelor of Science in Clinical Laboratory Sciences	Michelle Parent
Bachelor of Science in Health Sciences	Nicole Shakerley
Bachelor of Science in Forensic Psychology	Ross Krawczyk
Bachelor of Science in Forensic Science	Sara Alvaro
Bachelor of Science in Microbiology (Includes Capstone and Thesis Tracks)	Anne McCabe
Bachelor of Science in Nursing	Michelle Danao
Bachelor of Science in Pharmaceutical Sciences	Manish Shah
Bachelor of Science in Psychology	Ross Krawczyk
Bachelor of Science in Public Health	Margaret Doll
Bachelor of Science in Pharmaceutical Sciences Pharmacy Skills Track BS/MS Pharmaceutical Sciences, 5-year Dual Degree (2026-2027)	*Rich Dearborn
Pre-Professional Pathways	Elizabeth Brookins

DEGREE PROGRAM CURRICULAR GRIDS (LINKED IN PROGRAM NAME)

Graduate Degree Programs

Program	*Program Director*
Master of Science in Biotechnology	*Payel Datta*
Master of Science in Biomedical Sciences	*Elizabeth Brookins*
Master of Science in Cytotechnology & Molecular Cytology	*Caleigh-Shea Norray*
Master of Science in Clinical Laboratory Sciences	*Michelle Parent*
Master of Science in Health Data Science	*Kevin Miller*
Master of Science in Molecular Biosciences	*Vir Singh*
Master of Pharmaceutical Sciences - Capstone *Master of Pharmaceutical Sciences - Thesis*	*Manish Shah*

Doctorate Degree Program

Program	*Assistant Dean for Academics/Program Director*
Doctor of Pharmacy	*Matthew Yacobucci*

COURSE DESCRIPTION OVERVIEW

Courses with the following prefixes can be used to satisfy the liberal arts requirements: 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 the end of prefix and number are graduate courses. Graduate courses are numbered 600 or higher. Graduate courses numbered as 600-699 are designated as introductory or first year graduate courses;

courses numbered 700-799 are intermediate graduate courses, and courses numbered 800-899 are advanced graduate courses. Graduate credit can only be awarded for courses numbered at 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.

COURSE DESCRIPTIONS

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. 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)

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, and bibliography preparation per accepted scientific convention. Writing skills will be polished and demonstrated 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 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); Cross listed as Techniques in Molecular Biology FSC 345; Prerequisites: BIO 346, 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); Cross listed as Techniques in Molecular Biology FSC 346; Prerequisites: BIO 346, 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 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's 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 altered microanatomy caused by pathologic forces. (3); Prerequisite: BIO 214, BIO 216, BIO 346 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 cause 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's 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 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. (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 biological sciences for all students. (4); Prerequisite: BIO 111 or permission of the instructor; Lecture and Laboratory

BIO 145 Phage Discovery
This is a discovery-based undergraduate research course. It will provide an understanding of the basic concepts of phage biology and practical knowledge of various lab techniques pertaining to isolation of phages from the environment. Students will employ various techniques for isolating, purifying, and characterizing phages. It will be a hands-on, project-oriented course. Lectures will include information on phage biology, basics of host bacteria and phage therapy. Students will be equipped to critically think, discuss, and present their research to a wider audience. (2) Prereqs: permission of instructor

BIO 146 Phage Genomics
This is the second part of the discovery-based undergraduate research course. It will provide an understanding of the basic concepts of genome annotation and practical knowledge of different bioinformatics tools. Students will annotate the genome of 1-2 phages that they had isolated from the environment. Using various bioinformatics tools they will identify gene information, tRNAs encoded in the phage genome, and predict protein function when

possible. It will be a hands-on, project-oriented course. Lectures will include information on bioinformatics basics, working with DNA Master, and phage therapy. Students will be equipped to critically think, discuss, and present their research to a wider audience. (1) Prereqs: permission of instructor

BIO 147 Fundamentals of Anatomy and Physiology I
This course offers an introduction to the structure and function of the human body, focusing on the basic principles of anatomy and physiology. Students will explore the organization of the body at cellular, tissue, organ, and system levels. Topics include the skeletal, muscular, nervous, and integumentary systems, as well as homeostasis and cellular processes. Emphasis is placed on understanding how the body systems work together to maintain overall health and function. (3); Prereqs: Open to Nursing majors only

BIO 148 Fundamentals of Anatomy and Physiology I Lab
This laboratory course is designed to complement the lecture content of Fundamentals of Anatomy and Physiology I, providing students with hands-on experience in studying the human body's structure and function. (1); Corequisite: BIO 147. Prereqs: Open to Nursing majors only

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 and 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 of a sequence which studies human anatomy and physiology. The goal of this course is to introduce the student to the structure, function, regulation and integration of organs and organ systems involved in the human body. This course will begin with an introduction to the study of anatomy and physiology, and a 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, nervous, endocrine systems, and special senses. Prerequisites: General Biology I and II

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 217 Fundamentals of Anatomy and Physiology II
Building on the foundational knowledge from Anatomy and Physiology I, this course delves deeper into the structure and function of the human body, with a focus on the remaining body systems. Topics include the cardiovascular, lymphatic, respiratory, digestive, urinary, endocrine, and reproductive systems, as well as fluid and electrolyte balance, and immunology. Students will learn how these systems interact to maintain homeostasis and support overall body function. (3); Prereqs: Open to Nursing majors only

BIO 218 Fundamentals of Anatomy and Physiology II Lab
This laboratory course is designed to complement the lecture content of Fundamentals of Anatomy and Physiology II, offering students hands-on experience in studying the advanced systems of the human body. (1); Corequisite: BIO 217; Prereqs: Open to Nursing majors only

BIO 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 proposals. Students will develop their skills through class exercises, homework assignments, and preparation of written and oral materials. Pre-requisites: Junior standing or higher. 2 credits.

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 300 Developmental Biology
This course provides an introduction to Developmental Biology. We will begin by establishing a strong foundation regarding the processes, questions, and tools underpinning the field of animal development, including mechanisms of developmental patterning and cell differentiation, cell-to cell communication, and the establishment and roles of stem cells. Upon addressing gametogenesis and fertilization, we will engage in a comparative analysis of cleavage, gastrulation, and axis specification in diverse metazoan taxa, with the ultimate goal of having a deeper understanding of early human development. Finally, we take a general overview of processes by which the three germ layers orchestrate formation of the vertebrate nervous system, epidermis, and cardiovascular system, blood,

urinary system, and digestive system. The role of the environment and symbioses in regulating development are also considered. Hallmark aspects of plant biology are occasionally highlighted to provide contrasting context for questions at the intersection of evolutionary biology and development. Though we will consider mechanisms of development from a scientific perspective, this course affords us with the opportunity to discuss topics germane to the present day, such as the beginnings of personhood, the significance of multicellularity, ethical and philosophical questions surrounding in vitro fertilization, newly realized roles of environment in shaping our life-long development, and many more. Pre-requisite: BIO 111 and BIO 121. BIO 346 (formerly BIO 235) recommended. 3 credits.

BIO 330 Principles of Ecology and Evolution
This course provides an introduction to ecology and evolution. Topics include physiological and behavioral ecology; population and community dynamics; ecosystem and landscape ecology; natural selection; population genetics; speciation; and the phylogenetic history and systematics of life. Students will complete a project in which they assess biodiversity by evaluating and employing tools for creating and visualizing phylogenies. We will explore the connections between these concepts and global challenges such as agricultural sustainability, ecosystem-climate interactions, biodiversity change, and emerging perspectives on human medicine that fall under the umbrella of 'evolutionary medicine'. Pre-requisites: BIO 111 and BIO 121. 3 credits

BIO 331 Mammalian Cell Culture. This course focuses on the applications of mammalian cells in the production of modern biomedicines. Through a combination of lectures, laboratory sessions, case studies, and interactive discussions, students learn the essential principles and techniques in upstream mammalian cell culture technologies, data analysis, automated cell counters, and bioreactor operations. Upon completion of this course, students will understand the principles and industrial applications of mammalian cells. (3)

BIO 335 Genetics (formerly BIO 225)
This course offers students the opportunity to learn the fundamental principles of genetics and its recent advance related to health care practice. Major topics include principles of Mendelian inheritance, theory of gene linkage and recombination, mechanisms of gene expression regulation including epigenetics, analysis of gene function with emphasizing in mutation and DNA repair, advanced concepts of human genomics and sequencing technology. Genetics is a science that is highly related to the advancement of biotechnology and its applications in health care nowadays. Common human genetic disorders will be discussed in this class, and other interesting topics include human personal identification, genetic testing, technology in gene therapy and basic concept of pharmacogenomics. Prerequisites: BIO 111 and BIO 121, or permission of the instructor.

BIO 337 Cell and Gene Therapy: This course provides a comprehensive exploration of the transformative field of Cell and Gene Therapy (CGT), tracing its historical milestones from early genetic theories to modern clinical breakthroughs. The curriculum integrates the fundamental biology of viral vectors and cellular engineering with advanced biotechnology and large-scale biomanufacturing processes. Students will examine the rigorous standards of Quality Control (QC) and Quality Assurance (QA), alongside the evolving global regulatory frameworks essential for patient safety. Through a combination of lectures, discussions, and case studies, students will develop scientific expertise to bridge laboratory innovation with industrial commercialization, ultimately designing a strategic roadmap for bringing novel regenerative medicines to market. This course emphasizes the application of scientific communication and technical writing principles. Upon completion of this course, students will learn the principles and industrial applications of cell and gene therapy. Recommended courses are: Microbiology (BIO 210), Cell Biology (BIO 346)

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 bacterial pathogenesis and emergence of antimicrobial resistance is also presented. (3); Prerequisites: BIO 210.

BIO 346 Cell Biology (formerly BIO 235)
This course explores the molecular structure and dynamic processes of the cell, emphasizing their impact on human health. Topics include gene expression, protein trafficking, membrane transport, cell signaling, cell cycle regulation, and the molecular basis of diseases. Students will engage with case studies, collaborative activities, and weekly problem sets to connect cellular mechanisms to physiological outcomes and biomedical applications. This course prepares students for advanced study in biomedical sciences and fosters ethical thinking about emerging biotechnologies.(3); Prerequisites: BIO 111 and BIO 121.

BIO 347 Cell Biology Laboratory (formerly BIO 236)
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 lectures, to solve problem sets related to laboratory topics. (1); Corequisite: BIO 346; NOTE: Cell Bio Lab is only required for Biomedical Sciences, Clinical Laboratory Sciences, and Forensic Science majors.

BIO 348. Microbial Fermentation. This course focuses on fundamental principles and techniques of industrial microbiology. Through a combination of lectures, laboratory sessions, case studies, and interactive discussions, students learn the principles and techniques in microbial fermentation technology, upstream microbial bioprocessing, data analysis, and microbial bioreactor operations. Upon completion of this course, students will understand the principles and industrial applications of microbial cells. (3)

BIO 349 Virology (formerly BIO 240)
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 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 focuses on how applied microbiology drives the safety of modern biomedicines and pharmaceutical products. Through a combination of lectures, laboratory sessions, case studies, and interactive discussions, students learn the principles of microbial identification, environmental monitoring, and contamination control. Upon completion of this course, students will understand the principles of risk mitigation strategies required for the safe production of biomedicines and biotechnologically derived products. (3); Prerequisite: BIO 111, BIO 121.

BIO 452 Health Science Senior Seminar. This seminar course is open to senior B.S. Health Sciences students only. Health Sciences Senior Seminar is a culminating senior-level course designed to synthesize academic, experiential, and professional learning across the Bachelor of Science in Health Sciences program. Students complete a comprehensive program Exit Exam, finalize and submit a pre-health competency-based co-curricular portfolio, participate in structured Mock Mini Interviews (MMIs), and engage in guided reflection on their academic and professional development. (1); Restricted to Health Science majors.

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 graduate level 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 346 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 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 111 and BIO 121. BIO 346 or equivalent is strongly recommended.

BIO 631G. Mammalian Cell Culture. This course focuses on applications of mammalian cells in the production of modern biomedicines. Through a combination of lectures, laboratory sessions, case studies, and interactive discussions, students learn the essential principles and techniques in upstream mammalian cell culture technologies, data analysis, automated cell counters, and bioreactor operations. Additionally, students will research and present findings on current trends and applications of mammalian cells in the production of modern biomedicines and other value-added, biotechnologically derived products. Upon completion of this course, students will understand the principles and industrial applications of mammalian cells. (3)

BIO 637 Cell and Gene Therapy: This course provides a comprehensive exploration of the transformative field of Cell and Gene Therapy (CGT), tracing its historical milestones from early genetic theories to modern clinical breakthroughs. The curriculum integrates the fundamental biology of viral vectors and cellular engineering with advanced biotechnology and large-scale biomanufacturing processes. Students will examine the rigorous standards of Quality Control (QC) and Quality Assurance (QA), alongside the evolving global regulatory frameworks essential for patient safety. Through a combination of lectures, discussions, and case studies, students will develop scientific expertise to bridge laboratory innovation with industrial commercialization, ultimately designing a strategic roadmap for bringing novel regenerative medicines to market. This course emphasizes the application of scientific communication and technical writing principles. Students will research and present their findings on current trends in cell and gene therapy. Peer reviews will be incorporated to enhance critical evaluation and communication skills.

Upon completion of this course, students will learn the principles and industrial applications of cell and gene therapy. Recommended courses are: Microbiology (BIO 210), Cell Biology (BIO 346)

BIO 641 G Current Topics in Biopharmaceutical Technology *(Pending Approval)*
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 course focuses on fundamental principles and techniques of industrial microbiology. Through a combination of lectures, laboratory sessions, case studies, and interactive discussions, students learn the principles and techniques in microbial fermentation technology, upstream microbial bioprocessing, data analysis, and microbial bioreactor operations. Additionally, students will research and present findings on current trends and applications of microbial cells in the production of modern biomedicines and other value-added, biotechnologically derived products. Upon completion of this course, students will understand the principles and industrial applications of industrial microbiology. (3)

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 655G Biopharmaceutical Microbiology
This course focuses on how applied microbiology drives the safety of modern biomedicines and pharmaceutical products. Through a combination of lectures, laboratory sessions, case studies, and interactive discussions, students learn the principles of microbial identification, environmental monitoring, and contamination control. Additionally, students will research and present findings on current trends in quality control and risk mitigation strategies for modern biomedicines. Upon completion of this course, students will understand the principles of risk mitigation strategies required for the safe production of biomedicines and biotechnologically derived products. (3)

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 111, BIO 121.

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 10-minute talk summarizing their research at the end of the rotation. (2)

BIO 675 G Biopharmaceutical Capstone
The biopharmaceutical capstone will serve as a culminating part of the MS degree program on advanced topics in biotechnology. This capstone course is designed to provide students with the opportunity to apply their knowledge and skills to advanced topics in biotechnology, including, cell line development, high throughput platforms, process development, scaling-up technologies, biomanufacturing, bioprocessing and regulatory landscapes in biotech/biopharma. 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); Prerequisites: Permission of Instructor

BIO 676 G Graduate Microbiology: Microbial Physiology and 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); Prerequisites: BIO 210, BIO 346, PSC 315, PSC 311 or CHE 311.

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 346, PSC 315, PSC 311 or CHE 311

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) Prerequisites: BIO 111/BIO 112 (General Biology) and BIO 346 Cell Biology OR PSC 312 OR BIO 625 OR BIO 630 OR CHE 311/PSC 311.

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 thesis proposal defense. On successful defense of the proposal, the student will commence the research. Studies involving humans must be approved by the College's IRB. Studies involving animals must be approved by IAUCC. 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 General Chemistry I (has also been offered as CHE 101)

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 General Chemistry II (has also been offered as CHE 102)

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 203 Quantitative Analysis
An introductory analytical chemistry course which emphasizes laboratory techniques and associated theory and calculations. Topics include statistics, stoichiometry, equilibrium, redox reactions, theory of analysis and analytical instrumentation. (3); CHE 204 Laboratory required. Prerequisite: CHE 121

CHE 204 Quantitative Analysis Lab
A series of wet chemical and instrumental determinations of the concentration of unknowns will be performed. Separations and pre-analytic preparation are involved. (1) Corequisite CHE 203

CHE 211 Organic Chemistry I (has also been offered as CHE 201)
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. An associated lab component complements the topics covered in lecture and works to develop laboratory skills with methods and instrumentation used in the synthesis, purification and characterization of organic compounds. *Prerequisites:* CHE 121: Lecture and Laboratory.

CHE 221 Organic Chemistry II (has also been offered as CHE 202)
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 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 301 Instrumental Analysis
An analytical chemistry course that will include the theory and applications of modern instrumental methods in chemistry. Analysis by spectroscopy (AA, UV-Vis, Fluorescence, and IR), chromatography (GC, HPLC, and CE), Mass Spectrometry and other selected methods will be discussed. (3); CHE 302 Laboratory required. Prerequisite: CHE 203

CHE 302 Instrumental Analysis Lab
This lab course emphasizes the use of spectroscopic and chromatographic instrumentation in quantitative and qualitative chemical analyses. (1) Corequisite CHE 301

CHE 311 Biochemistry
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 is explored using fundamental chemical and physical principles. Lecture (3); Prerequisite: CHE 201/211 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 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

Pharmacy Practice Experiences (IPPES and APPES) - CLK

CLK 798 IPPE Community
This experientially based, four-credits 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, and 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 with a cumulative professional GPA of 2.1 following the Spring semester and completion of 35 credits (C- or better), which must include: PHM510, PSL511, PSL512, PHM518, PHM585.

CLK 803 IPPE Team-Based Care

This experientially based, one week (one 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 during 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. In addition to the IPPE Community (CLK798) rotation, 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: PSL521, PSL522, PTP521, PTP520, PTP524.

CLK 807 IPPE Institutional

This experientially based, three week (three 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. 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: PSL521, PSL522, PTP521, PTP520, PTP524.

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 broad exposure to various pharmacy practice environments to enable development of knowledge and skills s. 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 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 Patient Care Elective (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, all IPPEs, and have a minimum GPA of 2.3 by the end of Spring P3.

- **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 **Patient Care Elective** 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 patient care 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 101 Introduction to Medical Laboratory Sciences
This course is an introduction to the field of Medical Laboratory Science, emphasizing the vital role laboratory professionals play in patient care. Through hands-on laboratory experiences and foundational instruction, students will be introduced to the core disciplines such as clinical chemistry, hematology, microbiology, and immunology. Students will begin to gain practical skills in laboratory safety, specimen handling, basic instrumentation, and diagnostic techniques. The course also introduces study skills helpful to CLS students, professional ethics, quality assurance & control, and the importance of accurate laboratory testing in the healthcare system. Designed to spark interest in the field, this course, required of CLS students but open to all, introduces clinical training in medical laboratory science. (1);
Co-requisites: BIO111 and CHE111

CLS 307 Urinalysis and Body Fluids

This course will cover the physiology and pathophysiology of renal function and the renal function tests including chemical and microscopic examination of urine, urine safety, and the automation process of examining urine. This course also includes 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. This course meets one day a week.
(1) Pre-requisite: BIO 213/214, BIO 215/216, Co-requisite: CLS 308

CLS 308 Urinalysis and Body Fluids Laboratory
This course will cover how one performs renal function tests including chemical and microscopic examination of urine, urine safety, and the automation process of examining urine. This course also instructs students on how to properly complete body fluids analysis on specimens such as fecal specimens, spinal fluid and other body fluids. This

laboratory experience that coincides with lecture includes performance of analysis of urine, body fluids, fecal specimens, and semen. Laboratory safety, quality control, and troubleshooting will be emphasized. Clinical correlation of other laboratory results with body fluid results and patient diagnosis is emphasized. (1); Pre-requisite: BIO 213/214, BIO 215/216, Co-requisite: CLS 307

CLS 317 Clinical Hematology and Hemostasis
This course will address the evaluation of blood cells and body fluids in the clinical hematology laboratory. The lecture will highlight physiology, pathophysiology and laboratory testing of blood and bone marrow cells, evaluation of hemostasis and hemostatic disorders and the laboratory evaluation of formed elements found in other body fluids. Students will learn the skills necessary to perform basic laboratory tasks such as understanding the cells found in a differential and how to distinguish normal cells from abnormal cells. Students will also utilize case studies and presentations to deepen their understanding of hematological and hemostasis disorders. (3); Pre-requisite: BIO 111/121; Co-requisite: CLS 318

CLS 318 Clinical Hematology and Hemostasis 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); Pre-requisite: BIO 213/214; Co-requisite: CLS317

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.) Introduction to microorganisms 2.) antimicrobial susceptibility testing and infection control, 3.) aerobic/facultative gram-positive bacteria, 4.) aerobic/facultative gram-negative bacteria and miscellaneous bacteria. 5.) Parasitology. 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); Pre-requisite: BIO111, BIO121, BIO210; Co-requisite: CLS328 (for majors only)

CLS 328 Clinical Microbiology I Laboratory
The goal of this first semester of Clinical Microbiology Laboratory is to facilitate the student's ability both to understand the principles of diagnostic microbiology methodologies and to apply this knowledge to the interpretation of test data in health and disease. Students will identify human bacterial and parasitic pathogens and be introduced to various laboratory techniques. Laboratory activities are designed to complement the lecture course and provide the student with the opportunity to utilize and practice the principles learned and required to become a clinical laboratory scientist in the hospital setting. (1); Pre-requisite: BIO210, Co-requisite: CLS327

CLS 329 Clinical Microbiology II
This course is a continuation of Clinical Microbiology I and will focus on mycology and body system-associated clinical specimens and infections. Specifically, students using the appropriate patient specimen for the given diagnosis will recognize, characterize, and identify normal microbiota and pathogenic isolates. The student will be able to integrate patient history, symptoms, antimicrobial susceptibility testing, and epidemiological data to establish the etiology of an infection. To achieve these goals pre-analytical, analytical, and post-analytical factors will be considered throughout the course. The course will be organized into 3 units: 1.) anaerobic and mycobacteria bacteriology, 2.) body system-associated infections and 3.) medical mycology. 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); Pre-requisite: CLS327, Co-requisite: CLS330

CLS 330 Clinical Microbiology II Laboratory
The goal of the second semester of Clinical Microbiology Laboratory is to reinforce fundamentals learned in CLS327/328. Here, we will review routine specimens received for culture, the common pathogens isolated, and how to identify those pathogens. We will focus on the specimen Gram stain review and identification of pathogens isolated from mock patient specimens. In addition, students will learn more fundamentals; from the proper collection and handling of specimens to their proper disposal, and all other pertinent aspect of Clinical Microbiology. Additionally, we will focus on the characterization and identification of the most commonly encountered fungal isolates in the clinical laboratory. This will include knowledge of commonly utilized fungal media, important growth requirements, staining and biochemical identification of these organisms. (1); Pre-requisites: CLS327/CLS328, Co-requisite: CLS329

CLS 337 Clinical Immunology and Virology
This course provides a review of the immune system and its role in defending against infections and disease. Students will learn the fundamental principles of innate and adaptive immunity, including T cell and B cell development, differentiation, and function. The course will also cover key immunological assays, immunological mechanisms such as antigen presentation, cytokine and chemokine production. Additionally, students will examine common immunological disorders, including autoimmune diseases, immunodeficiencies, and hypersensitivity reactions. The virology component of the course will focus on major human viral pathogens, including RNA and DNA viruses, their pathogenesis, and the host immune response to viral infections. Emerging viral threats and advances in vaccination, antiviral therapies, and immunodiagnostics will also be discussed. Students will gain a comprehensive understanding of the clinical relevance of immunology and virology in disease diagnosis, prevention, and treatment. This course will educate and prepare students for a career as a health care practitioner utilizing the most updated clinical immunology and clinical virology theory and applications. (3); Pre-requisite: BIO346/347

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); Pre-requisites: BIO213/214, BIO215-216; Co-requisites: CLS340

CLS 340 Immunohematology Laboratory
This course material is required content stated by the National Accreditation Agency for Clinical Laboratory Science (NAACLS) and therefore an essential topic in the ACPHS CLS program during the professional years. Immunohematology is a part of all CLS programs and is one of the major topics for NAACLS and the hospital clinical laboratory environment. (1); Co-requisite: CLS339

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 through hands-on measurement and correlation with pathophysiology. (3);
Pre-requisites: CHE111/121, PSC311, CHE221; Co-requisites: CLS347

CLS 347 Clinical Chemistry Laboratory
This course will cover the principles and procedures of various diagnostic tests performed in Clinical Chemistry laboratories; students will perform both manual and automated techniques. The physiological basis, the principle and procedure, and the clinical significance of test results, including quality control and reference values will be covered. Specifically, topics in the clinical chemistry laboratory relating to the detection and quantitation (of electrolytes imbalance, acid-base balance, blood/plasma proteins, carbohydrates detection/quantitation, lipids panels, enzyme activity, drugs/drug metabolites) in clinical samples/specimens will be covered. Emphasis is placed on problem-solving experience with respect to both theoretical and practical applications. (1); Pre-requisites: CHE111/CHE121, PSC311, CHE221; Co-requisite: CLS346

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)

CLS 403 Immunohematology Rotation
The clinical immunohematology practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in immunohematology testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (3); Prerequisite: Completion of all 300-level CLS coursework.

CLS 404 Clinical Microbiology Rotation
The clinical microbiology practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in clinical microbiology testing and data interpretation. Students will be expected to demonstrate proficiency across all

phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level medical laboratory scientist. (3); Prerequisite: Completion of all 300-level CLS coursework.

CLS 405 Molecular Diagnostics Rotation
The molecular diagnostics practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in molecular diagnostic testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level medical laboratory scientist. (1); Prerequisite: Completion of all 300-level CLS coursework.

CLS 406 Clinical Laboratory Management Rotation
The Clinical Laboratory Management practicum is designed to provide students with a practical, hands-on understanding of key management principles within the clinical laboratory setting. Emphasizing real-world application, the course will guide students through essential components of laboratory operations, which can include personnel supervision, budgeting, inventory control, regulatory compliance, quality assurance, workflow optimization, and strategic planning. These experiences aim to develop leadership, problem-solving, communication, and decision-making skills essential for laboratory management roles. Students will explore current issues affecting laboratory operations, including staffing shortages, regulatory changes, and the integration of automation and informatics. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level medical laboratory scientist. (1); Prerequisite: Completion of all 300-level CLS coursework.

CLS 407 Clinical Immunology Rotation
The clinical immunology practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in immunology testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This

experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (3); Prerequisite: Completion of all 300-level CLS coursework.

CLS 408 Clinical Urinalysis Rotation
The clinical urinalysis practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in urinalysis testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (1); Prerequisite: Completion of all 300-level CLS coursework.

CLS 409 Elective Clinical Rotation
This elective rotation will broaden a CLS student's ability to connect theoretical knowledge with practical skills through direct experience in an area of testing and data interpretation that is considered a specialty topic in the clinical laboratory. Students will experience all phases of laboratory work for this topic, to include pre-analytical, analytical, and post-analytical, ensuring accurate and reliable results in clinical practice. In addition, this practicum will also emphasize the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This elective experience will add to the critical foundation for future success as an entry-level medical laboratory scientist. (1); Prerequisite: Completion of all 300-level CLS coursework.

CLS 412 Clinical Chemistry Rotation
The clinical chemistry practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in chemistry testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (3); Prerequisite: Completion of all 300-level CLS coursework.

CLS 415 Clinical Hematology and Hemostasis Rotation
The clinical hematology practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in hematology testing and data interpretation. Students will be expected to demonstrate proficiency across all phases

of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (3); Prerequisite: Completion of all 300-level CLS coursework.

CLS499 Clinical Laboratory Sciences Senior Seminar
This senior seminar course prepares Clinical Laboratory Science students for professional entry into the healthcare workforce. Students will explore current and emerging trends in healthcare, apply ethical and reflective practices, and strengthen career readiness skills. Topics include healthcare professionalism, ethics, future directions in clinical laboratory medicine, and strategies for continuous professional growth. Students will develop a professional resume, practice interviewing skills, and engage in critical analysis of patient case studies. The course provides the student with a culminating experience with a formal patient case study presentation that integrates clinical laboratory data, patient information, and evidence-based interpretation; allowing the students to apply knowledge gained in each relevant CLS topic. (1); Pre-requisites: Completion of all CLS 300 level courses. Co-requisites: Concurrent enrollment in CLS Clinical Practicum Courses.

CLS 607 Urinalysis & Body Fluid
This course will cover the physiology and pathophysiology of renal function and the renal function tests including chemical and microscopic examination of urine, urine safety, and the automation process of examining urine. This course also includes the theory and performance of body fluids analysis and 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. This course meets one day a week. Graduate students are required to complete weekly peer-reviewed journal article discussion with their peers via canvas. This reinforces the topics learned each week on a deeper level to promote further understanding of the topic of Urinalysis and Body Fluids. (1); Co-requisite: CLS608

CLS 608 Urinalysis & Body Fluids Laboratory
This course will cover how one performs renal function tests including chemical and microscopic examination of urine, urine safety, and the automation process of examining urine. This course also instructs students on how to properly complete body fluids analysis on specimens such as fecal specimens, spinal fluid and other body fluids. This laboratory experience that coincides with lecture includes performance of analysis of urine, body fluids, fecal specimens, and semen. Laboratory safety, quality control, and troubleshooting will be emphasized. Clinical correlation of other laboratory results with body fluid results and patient diagnosis is emphasized. Graduate students are required to complete a graduate assignment consisting of a case study with questions in a presentation format for their fellow students. This reinforces the topics learned each week on a deeper level to promote further understanding of the topic of Urinalysis and Body Fluids.(1); Co-requisite: CLS608

CLS 617 Clinical Hematology & Hemostasis
This course will address the evaluation of blood cells and body fluids in the clinical hematology laboratory. The lecture will highlight physiology, pathophysiology and laboratory testing of blood and bone marrow cells, evaluation of hemostasis and hemostatic disorders and the laboratory evaluation of formed elements found in other body fluids. Students will learn the skills necessary to perform basic laboratory tasks such as understanding the cells found in a differential and how to distinguish normal cells from abnormal cells. Students will also utilize case studies

and presentations to deepen their understanding of hematological and hemostasis disorders. Graduated students are required to complete weekly peer-reviewed journal article discussion with their peers via canvas. This reinforces the topics learned each week on a deeper level to promote further understanding of the topic of Hematology and Hemostasis. (3); Co-requisite: CLS618

CLS 618 Clinical Hematology & Hemostasis 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. Graduate students are expected to use the information presented in lab and create an in-depth case study and discussion to exhibit a deeper understanding of hematological topics. (1); Co-requisite: CLS617

CLS 627 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.) Introduction to microorganisms 2.) antimicrobial susceptibility testing and infection control, 3.) aerobic/facultative gram-positive bacteria, 4.) aerobic/facultative gram-negative bacteria and miscellaneous bacteria. 5.) Parasitology. Graduate students will review, analyze and discuss relevant peer-reviewed published literature focusing on the topic of Clinical Microbiology and Parasitology. 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); Co-requisite: CLS328, Clinical Microbiology Laboratory (for majors only)

CLS 628 Clinical Microbiology I Laboratory
The goal of this first semester of Clinical Microbiology Laboratory is to facilitate the student's ability both to understand the principles of diagnostic microbiology methodologies and to apply this knowledge to the interpretation of test data in health and disease. Students will identify human bacterial and parasitic pathogens and be introduced to various laboratory techniques. Laboratory activities are designed to complement the lecture course and provide the student with the opportunity to utilize and practice the principles learned and required to become a clinical laboratory scientist in the hospital setting. Graduate students will review, analyze and discuss relevant peer-reviewed published case studies focusing on the topic of Clinical Microbiology and Parasitology. (1); Co-requisite: CLS627

CLS 629 Clinical Microbiology II
This course is a continuation of Clinical Microbiology I and will focus on mycology and body system-associated clinical specimens and infections. Specifically, students using the appropriate patient specimen for the given diagnosis will recognize, characterize, and identify normal microbiota and pathogenic isolates. The student will be able to integrate patient history, symptoms, antimicrobial susceptibility testing, and epidemiological data to establish the etiology of an infection. To achieve these goals pre-analytical, analytical, and post-analytical factors will be considered throughout the course. The course will be organized into 3 units: 1.) anaerobic and mycobacteria bacteriology, 2.) body system-associated infections and 3.) medical mycology. Graduate students will review, analyze and discuss relevant peer-reviewed published literature focusing on the topic of Clinical Microbiology and Medical Mycology. 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); Pre-requisite: CLS627; Co-requisite: CLS630 Clinical Microbiology Laboratory (for majors only)

CLS 630 Clinical Microbiology II Laboratory
The goal of the second semester of Clinical Microbiology Laboratory is to reinforce fundamentals learned in CLS627/628. Here, we will review routine specimens received for culture, the common pathogens isolated, and how to identify those pathogens. We will focus on the specimen Gram stain review and identification of pathogens isolated from mock patient specimens. In addition, students will learn more fundamentals; from the proper collection and handling of specimens to their proper disposal, and all other pertinent aspect of Clinical Microbiology. Additionally, we will focus on the characterization and identification of the most commonly encountered fungal isolates in the clinical laboratory. This will include knowledge of commonly utilized fungal media, important growth requirements, staining and biochemical identification of these organisms. Graduate students will review, analyze and discuss relevant peer-reviewed published case studies focusing on the topic of Clinical Microbiology and Mycology. (1); Pre-requisites: CLS627/628; Co-requisite: CLS629

CLS 637 Clinical Immunology & Virology
This course provides a review of the immune system and its role in defending against infections and disease. Students will learn the fundamental principles of innate and adaptive immunity, including T cell and B cell development, differentiation, and function. The course will also cover key immunological assays, immunological mechanisms such as antigen presentation, cytokine and chemokine production. Additionally, students will examine common immunological disorders, including autoimmune diseases, immunodeficiencies, and hypersensitivity reactions. The virology component of the course will focus on major human viral pathogens, including RNA and DNA viruses, their pathogenesis, and the host immune response to viral infections. Emerging viral threats and advances in vaccination, antiviral therapies, and immunodiagnostics will also be discussed. Students will gain a comprehensive understanding of the clinical relevance of immunology and virology in disease diagnosis, prevention, and treatment. Graduate students will review, analyze and discuss relevant peer-reviewed published literature focusing on the topic of Clinical Immunology and Clinical Virology. This course will educate and prepare students for a career as a health care practitioner utilizing the most updated clinical immunology and clinical virology theory and applications. (3)

CLS 639 Immunohematology
This course will apply immunological 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. Graduate students are required to complete weekly peer-reviewed journal article discussion with their peers via canvas. This reinforces the topics learned each week on a deeper level to promote further understanding of the topic of Immunohematology. (3); Co-requisite: CLS640 (for majors only).

CLS 640 Immunohematology Laboratory
Students will perform various Blood bank techniques to determine blood type, identify unexpected antibodies, and identify compatible blood units as well as 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. Graduate students are required to complete a graduate assignment consisting of a case study with questions in a presentation format for their fellow students. This reinforces the topics learned each week on a deeper level to promote further understanding of the topic of Immunohematology. (1);
Co-requisite: CLS639 (for majors only)

CLS 646 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 through hands-on measurement and correlation with pathophysiology. Graduate students will review, analyze and discuss relevant peer-reviewed published literature focusing on the topic of Clinical Chemistry. (3); Pre-requisites: CHE111/121, PSC311, CHEM22; Co-requisite: CLS347 (for majors only)

CLS 647 Clinical Chemistry Laboratory

This course will cover the principles and procedures of various diagnostic tests performed in Clinical Chemistry laboratories; students will perform both manual and automated techniques. The physiological basis, the principle and procedure, and the clinical significance of test results, including quality control and reference values will be covered. Specifically, topics in the clinical chemistry laboratory relating to the detection and quantitation (of electrolytes imbalance, acid-base balance, blood/plasma proteins, carbohydrates detection/quantitation, lipids panels, enzyme activity, drugs/drug metabolites) in clinical samples/specimens will be covered. Emphasis is placed on problem-solving experience with respect to both theoretical and practical applications. Graduate students will review, analyze, and discuss relevant peer-reviewed published literature focusing on the topic of Clinical Chemistry. (1); Co-requisite: CLS646

CLS 700 Principles of Clinical Laboratory Management

This course educates students on 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, and 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. Graduate students will be completing different assignments focusing on current management literature review and employing critical thinking and writing skills. Students will review career planning strategies, professional development, resume and interviewing skills. (3)

CLS 703 Immunohematology Rotation

The clinical immunohematology practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in immunohematology testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to

patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (3); Prerequisite: Completion of all 600-level CLS coursework.

CLS 704 Clinical Microbiology Rotation
The clinical microbiology practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in clinical microbiology testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level medical laboratory scientist. (3); Prerequisite: Completion of all 600-level CLS coursework.

CLS 705 Molecular Diagnostics Rotation
The molecular diagnostics practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in molecular diagnostic testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level medical laboratory scientist. (1); Prerequisite: Completion of all 300-level CLS coursework.

CLS 706 Clinical Laboratory Management Rotation
The Clinical Laboratory Management practicum is designed to provide students with a practical, hands-on understanding of key management principles within the clinical laboratory setting. Emphasizing real-world application, the course will guide students through essential components of laboratory operations, which can include personnel supervision, budgeting, inventory control, regulatory compliance, quality assurance, workflow optimization, and strategic planning. These experiences aim to develop leadership, problem-solving, communication, and decision-making skills essential for laboratory management roles. Students will explore current issues affecting laboratory operations, including staffing shortages, regulatory changes, and the integration of automation and informatics. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level medical laboratory scientist. (1); Prerequisite: Completion of all 300-level CLS coursework.

CLS 707 Clinical Immunology Rotation
The clinical immunology practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to

strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in immunology testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (3); Prerequisite: Completion of all 300-level CLS coursework.

CLS 708 Clinical Urinalysis Rotation

The clinical urinalysis practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in urinalysis testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (1); Prerequisite: Completion of all 600-level CLS coursework.

CLS 709 Elective Clinical Rotation

This elective rotation will broaden a CLS student's ability to connect theoretical knowledge with practical skills through direct experience in an area of testing and data interpretation that is considered a specialty topic in the clinical laboratory. Students will experience all phases of laboratory work for this topic, to include pre-analytical, analytical, and post-analytical, ensuring accurate and reliable results in clinical practice.
In addition, this practicum will also emphasize the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This elective experience will add to the critical foundation for future success as an entry-level medical laboratory scientist. (1); Prerequisite: Completion of all 300-level CLS coursework.

CLS 712 Clinical Chemistry Rotation

The clinical chemistry practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in chemistry testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This

experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (3); Prerequisite: Completion of all 600-level CLS coursework.

CLS 715 Clinical Hematology and Hemostasis Rotation
The clinical hematology practicum is structured to immerse students in the daily operations of a working laboratory while fostering their growth as competent future medical laboratory professionals. This rotation is intended to strengthen the student's ability to connect theoretical knowledge with practical skills through direct experience in hematology testing and data interpretation. Students will be expected to demonstrate proficiency across all phases of laboratory work—pre-analytical, analytical, and post-analytical—ensuring accurate and reliable results in clinical practice. In addition to technical competence, the practicum emphasizes the development of strong communication and interpersonal skills, preparing students to engage respectfully and effectively with laboratory personnel, healthcare teams, and other stakeholders. A successful practicum experience culminates in the student's readiness to deliver high-quality laboratory services that contribute meaningfully to patient care and clinical outcomes. This experience provides a critical foundation for future success as an entry-level clinical laboratory scientist. (3); Prerequisite: Completion of all 600-level CLS coursework.

CLS 760 Clinical Correlations
Through case study and extensive clinical laboratory science topic review, this course is the culmination of the Clinical Laboratory Science curriculum. The results of testing in all laboratory disciplines are applied to the patient's diagnosis, the resolution of pre-analytic, analytic, and post-analytic issues, and the appropriate management of the clinical laboratory. These topical discussions require knowledge of normal laboratory testing results, approved and utilized patient testing protocols, factors that affect the accuracy of laboratory testing, quality management principles, and the ability to integrate diverse information to arrive at a diagnosis, corrective action, or quality improvement recommendation. (3); Co-requisite: Registration in Clinical Laboratory Science rotation courses: Clinical Hematology and Hemostasis, Clinical Chemistry, Clinical Microbiology, Immunohematology, Molecular Diagnostics, Clinical Immunology, Clinical Laboratory Management or Miscellaneous Clinical Topics.

CLS 790 Clinical Laboratory Science Capstone
The capstone project is open to Clinical Laboratory Science Master Degree students only. The scope of this project will vary based upon clinical rotation patient case report or potential research project. The common element for each project is the production of a peer-reviewed, journal article quality, written document, and a seminar or poster presentation. 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. (3); Co-requisite: CLS760

Criminal Justice

CJS 110 Introduction to Criminal Justice
This broad introductory course in criminal justice is focused on the American criminal justice system and how the system exerts social control over individuals and groups and balances the interests of crime control and due process. The course describes the ways that criminal justice actors -- the 4Cs of citizens, cops, courts, and corrections – attempt to administer justice in the US. Through activities such as readings, weekly assignments, lecture, exercises, independent research, presentations, debate, and examinations, students gain an understanding of the roles of citizens, police, courts and corrections. Students will study basic criminal justice concepts, terms, and processes, including the manner in which society is served, as well as the problems that exist.

CJS 111 Criminal Behavior
This foundational course in criminal justice is an introduction to an interdisciplinary perspective of criminological knowledge. The course surveys explanations of crime and deviance amongst individual, group, and societal levels. Lecture, discussion, weekly assignments, and case studies will enable students to recognize and understand the causes of crime and deviance. Students will use existing and traditional criminological research to describe the major criminological theories that offer different explanations about deviance, why some individual commit crime, and solutions to existing social problems. (3)

CJS 112 Court Systems
This foundational course in criminal justice is an introduction to an interdisciplinary perspective of criminological knowledge. The course surveys explanations of crime and deviance amongst individual, group, and societal levels. Lecture, discussion, weekly assignments, and case studies will enable students to recognize and understand the causes of crime and deviance. Students will use existing and traditional criminological research to describe the major criminological theories that offer different explanations about deviance, why some individual commit crime, and solutions to existing social problems. (3)

CJS 232 Policing
This course will focus on police organizations, functions, and issues. Students will begin with the foundational understanding that the police mission to protect and serve requires police to: (1) exercise appropriate police authority to protect society; and (2) ensure the protections enumerated in the US Constitution. Students will focus on the development of American policing, the organization of modern American police departments, policing roles, and various operational policing methods. Notably, the course will consider the impact of recent events involving police, important trials and decisions, and pro and anti-police movements. The course study will also include the concept of "Intelligence-Led Policing" (ILP) -- an evolving law enforcement strategy which uses crime data, analysis, and intelligence to reduce crime, safeguard society, and protect individual rights. Regarding ILP, the course will focus on how law enforcement organizations at the local, state, and federal levels share and analyze criminal intelligence to reduce crime, assist communities, and support policing. The course will emphasize practical strategies, solutions to problems, improved policing methods, and leadership challenges for the future. (3)

CJS 234 Probation, Prison and Parole
This course will provide students with an advanced level of information, literacy, and understanding of jails, prisons, and other methods of corrections. The course addresses the key issues historically and currently shaping how incarceration serves the punishment goals of retribution, deterrence, rehabilitation, and reintegration through prison and jail programming, population control strategies, administrative procedures, and community transition programs. Course learning activities focus on the application and influence of political philosophies on the American use of prisons and typically includes comparative studies of other criminal justice systems outside the US. (3)

CJS 238 Substantive Criminal Law
This course will provide an introduction to substantive crimes in the United States and trace the historical, social and philosophical sources as those apply to American criminal law. The course will examine major crimes and their essential elements of criminal liability. The study will include a thorough analysis of the scope, purpose, definition and classification of criminal offenses, such as crimes against the person (murder, rape, robbery, assault), crimes against property (larceny) and habitation (burglary, arson), and crimes against public order (riot), and a discussion of defenses to criminal responsibility. The course will include considerable use of case studies, practical exercises, and current and historical criminal cases. (3)

CJS 239 Juvenile Delinquency and Justice
This course will explore the nature and extent of juvenile crime and victimization in American society. Topics will include the historical changes in the legal definition of the juvenile offender, the cultural myths of juvenile crime victimization, and the administrative response of the criminal justice systems of police, courts, and corrections. The course will critically examine the juvenile justice system in the United States, the goals and objectives of the system, and a comparison with adult justice court systems. Related topics such as race, ethnicity, gender, and socioeconomic status, are examined. (3)

CJS 242 Victimology
This course will examine the victims' experience/outcome in a criminal event. The course will also consider how victims are affected by their experiences with the criminal justice system, and the goals of victims' rights and restorative justice efforts. The course will focus on victims' issues regarding intimate partner violence, child abuse, sexual assaults in the U.S. military, acquaintance rapes, school shootings, self-protection debates, and similar high-visibility issues. The course will also consider victimology as a critical component in investigations and solving crimes. (3)

CJS 244 Criminal Profiling
This course will explore criminal profiling as it applies to criminal investigations and legal proceedings. The course will utilize the "behavioral evidentiary analysis" (BEA) model of profiling and its application to investigations and legal proceedings but will also examine alternative methods of profiling. Students will become familiar and adept at using crime scene review, forensic evidence assessment, and forensic victimology to build and adapt profiles. Specific focus areas will include recognition of investigative biases, use of scientific method, use of critical thinking, use of inferences to support profile development, and the contributions of mental health and scientific experts. Students will review real cases, past and present, to develop multiple profiles of solved and unsolved matters. (3)

CJS 252 Introduction to Evidence
This course will focus on the basic rules of evidence contained in the Federal Rules of Evidence (FRE). Students will learn to apply the FRE to solve common evidence-based scenarios that often appear at civil and criminal trials. The course will specifically cover the nature of evidence (e.g., direct, circumstantial, real, testimonial, and hearsay), evidence related issues (e.g., relevance, materiality, admissibility, presumptions, inferences, and stipulations), the evidentiary process (e.g., the fact-finding process, authentication of evidence, and examination of witnesses), and special types of witnesses such as experts. Students will be challenged in class through discussion, role playing and problem solving relative to the rules and principles of evidence. (3)

CJS 310 Ethics
This course is a practical study for forensic psychology majors regarding the critical ethical issues they will inevitably face in their studies, research, careers, and leadership roles. (3)

CJS 337 White Collar Crime
This course will examine the changing concept of white-collar crime, both in theory and practice. A "systems-based" approach (i.e., health care, economic, education) to white collar crime will be paramount. Through a full social survey and case studies, a range of offenses will be examined, such as occupational crimes, corporate crimes, and political crimes, as well as in-depth profiling of white-collar offenders. Additional topics will include the problems of measurement, the criminal justice system response, and the social attitudes and consequences of white-collar crime in the United States. Blue-collar (or street) crimes will be included periodically for comparative analysis. A strong emphasis will be placed on a review of past and present cases and the issues involved. (3)

CJS 340 Sex Crimes and Paraphilia
This course will examine various sex crimes ranging from nonviolent offenses such as exhibitionism, voyeurism and obscene telephone calls to serial rapes and lust murders. Certain fantasies and paraphilias may not be perceived as criminal; however, such behaviors can be understood as preparatory actions that become motivation for future sex offending. Once reaching an understanding of the sex offender, intervention strategies will be explored. (3)

CJS 352 Scientific Evidence and Expert Opinion Evidence
Evidence is the foundation upon which US legal practice is built and expert witness evidence forms an important part of that foundation. This course is focused on the rules of evidence that guide the use of scientific evidence and expert opinions in criminal and civil proceedings. The course will use the Federal Rules of Evidence (FRE) 700 section to examine the principles governing the use of evidence by experts -- those whose work will involve them in legal proceedings (forensic psychologists, forensic scientists, psychologists, medical professionals, clinicians, social workers, engineers, investigators, etc.). The course will specifically cover the nature of scientific and expert opinion evidence and evidence-related issues surrounding the admissibility of such evidence. Particular attention will be paid FRE 702 and the component parts of expert evidence including qualifications, materials, standards, reliability, and opinions. Similarly, the course will focus on the creation and content of documents and records created prior to litigation and the possible use of these work products in legal proceedings including trial, settlement, negotiations, and motions. Students will be challenged in class through discussion, independent research, and role playing by applying rules and principles of expert witness evidence that occur within their given fields of study.

CJS 370 Human Trafficking
Human trafficking has been described as “modern day slavery.” The crime of human trafficking has emerged as one of the most important 21st century issues to be addressed, through study, research, and anti-trafficking efforts. This course will examine the legal, socio-cultural, historical, and political aspects of human trafficking. The course will focus on sex trafficking and labor trafficking in the US and internationally. The course will also cover lesser-known trafficking topics such as organ trafficking, child marriage, and child soldiers. The focus of the course will center around the identification, investigation, prosecution, and prevention of human trafficking matters. The course study will consider US federal and state laws impacting human trafficking, as well as international standards and United Nations involvement. The course will consider how technology and globalization have made this an international crisis that requires a collaborative and cooperative international response. (3)

CJS 424 Serial Crime
This course will examine serial predatory behavior including rape, arson, and murder. With a focus on the serial murderer, students will learn the theoretical and practical foundation for understanding the motivation and dynamics of serial crimes. Students will be expected to comprehensively analyze and present the life of a serial criminal of their own choosing. (3)

CJS 450 Cold Case Analysis
This course provides students with hands-on experience examining cold cases alongside investigative agencies and their families, and provides students with education in forensic science, law, and/or criminal investigation techniques. Students develop critical thinking and organizational skills important for a variety of career paths. Interested students must apply on the UAlbany Cold Case Analysis website. Following acceptance to the course, students should contact their ACPHS Program Director and complete a Hudson-Mohawk Cross-Registration Agreement form to register and receive credit. A background check may also be required. (3)

CJS 481 Mock Trial
This course is for students in all programs interested in learning and improving public speaking, communication,

advocacy, and presentation skills. Enrolled students can become members of the Albany College of Pharmacy and Health Sciences Mock Trial Team. The course will focus on the practice of tactics, planning, strategy, public speaking, presentation, leadership, teamwork, ethics, and competition. Each weekly class will focus on a single aspect of presentation of mock trial, such as practice, case overviews, strategies, theories, opening statements, witnesses, experts, testimony, direct and cross examinations, and closing arguments. Enrollment in this course and team is highly recommended for students interested in careers involving any level of public speaking and is not limited to those seeking law and forensics careers. Attendance and participation in class will be mandatory and will include practice, videotaping and review using National Institute of Trial Advocacy (NITA) feedback techniques shown to significantly improve public speaking and presentation skills. Each class will require prior reading and a pre-class assignment involving one or two of the skills above (for example, summary, theory, opening, closing, testimony).

The course will provide a basic framework for participation in The Mock Trial Team and its competitions in the fall and spring semesters each academic year. The course will utilize a written fact pattern and short NITA textbook (approximate total of two hundred pages for both). The level of participation and commitment by students will vary depending upon the student's respective role (for example, attorney roles take more time). For students interested in continuing with the Mock Trial Team in the future, those students can repeat the course each semester for one credit throughout their college careers as the fact pattern changes each academic year. Students who are less interested in participating in the Mock Trial Team after completion of the course can end participation. As members of the Mock Trial Team, students should expect at least one out-of-class team practice each week. (2)

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 610G 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 346 or equivalent; Lecture and Laboratory

CYT 620G 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 630G 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 640G and CYT 650G 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 346 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 770G 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 780G 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 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

ENG 202 The Mad Scientist in Literature

Burbling beakers, stacks of books, jars of strange creatures in formaldehyde, unruly hair and glasses, wide eyes, and a menacing grin. These familiar images of the mad scientist reveal our collective anxieties about scientific hubris—what happens when our scientific advancements outpace our humanistic ones. From Mary Shelly's Frankenstein to H.G. Well's The Invisible Man to contemporary works like Margaret Atwood's Oryx and Crake, this course examines how speculative and science fiction use the figure of the mad scientist to warn us of the dangers of scientific advancement if it is divorced from what makes us human, namely the social and moral bonds that hold us accountable. We are living in a time of great scientific advancements from artificial intelligence to genetic engineering, and so now, more than ever, we urgently need to reexamine the mad scientist to better understand how the actions of one could have devastating consequences for us all. Through close reading of literature whose protagonist is a mad scientist, students will "lift the cap off Dr. Finkelstein's brain" to peer into the ethical dilemmas at the heart of scientific advancement. Critical essays, creative responses, and class discussions will foster thorough investigation of our collective responsibility in shaping the future. (3); Prerequisite: ENG 101 First Year Writing or equivalent.

ENG 300 Illness in Words: The Language of Pain, Storytelling, Suffering, and Healing

This course explores the practice and theory of narrative medicine, an interdisciplinary field that emphasizes the importance of storytelling in clinical care, patient experiences, and medical ethics. Students will examine how narratives shape our understanding of illness, disability, trauma, and healing, both within and beyond the clinical encounter. Through literature, memoir, autotheory, and medical case studies, we will analyze how stories can both humanize and dehumanize, heal and harm, depending on who tells them and how they are received. Storytelling in medicine is a powerful tool for personal healing and fostering empathy, as it allows individuals to make sense of their experiences, reclaim agency over their bodies, and find meaning in moments of vulnerability. For healthcare providers, engaging with narratives cultivates a deeper understanding of patients' lived realities, bridging the gap between clinical objectivity and human connection, and ultimately leading to more compassionate, patient-centered care. Key themes include the ethics of representation, the role of narrative in patient-provider relationships, the politics of voice and silence in medicine, and the limitations of language in describing pain and the body. Readings may include comics, novels, art, nonfiction, stories, and contemporary patient narratives that challenge dominant

medical discourses. Students will engage in reflective writing, close reading, and creative assignments that bridge personal experience with critical analysis. (3)

ENG 301 Expressive Writing for Health
This course offers a unique interdisciplinary approach, combining rigorous academic analysis with immersive studio practice. Students will examine the scientific evidence supporting expressive writing's health benefits through peer-reviewed literature one day a week while developing their own expressive writing practice through studio sessions the other day of the week. Students in this class will also integrate complimentary practices of mindfulness, awareness through movement, and restorative yoga to enhance expressive writing practice. The course explores health through a comprehensive bio-psycho-spiritual framework that recognizes our interconnectedness, and students will acquire facilitation skills to share these practices with others beyond the classroom. Throughout the semester, we will cultivate a supportive community that models the healing potential of collective engagement with expressive writing. By the end of this course, students will possess both theoretical knowledge and practical skills to implement expressive writing as a health-promoting practice in their own lives and communities. (3); Prerequisite: ENG 101 First Year Writing or equivalent.

ENG 302 Imagining Healing: Post-Colonial, Post Apocalyptic, and Dystopian Poetry
Headlines blur our daytime into thoughts of what is to come as a result of climate change, health crises, and political turmoil. Poets are often thought of as prophets in that they imagine the endgame of present-day scenarios. In their hands, connections between the environment, the body, and the body politic become visceral meditations that help us to understand what our greatest human strengths are so that we may be resilient to the precarity of existence. In this way, these texts are healing and aid in our imaginings of what a healthy relationship to the earth, to ourselves, and to one another could be. Through exploration of contemporary post-apocalyptic, post-colonial, and dystopian poetry books, and analysis of the literatures these books refer to, students in this class will better understand the importance of poetic tools such as metaphor and symbolism to build and communicate meaning. Students will write their own poetry as well as analysis of poetry to build and articulate connections between nature, health, and community to ultimately imagine their own definitions of health and wellness. (3)

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 600G Healthcare Data Ethics
This course examines ethical considerations at the intersection of healthcare and data science, exploring both traditional medical ethics and emerging ethical challenges in the age of big data, AI, and precision medicine. The course uses case studies, debates, and real-world scenarios to help students develop ethical reasoning skills and practical approaches to ethical decision-making. (2)

ETH 610G 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)

Forensic Psychology

FPY 262 Forensic Psychology
This course will explore the application of psychology to the civil and criminal legal systems. Key topics will be covered that span the breadth of the criminal justice system from commission of the crime (e.g. eyewitnesses), the investigation (e.g. interrogations), pretrial matters (e.g. voir dire, competency to stand trial), the trial (e.g. jury decision making, insanity defense), and sentencing (e.g. judicial use of extralegal factors). Psychological theories will be utilized to explain and understand the way people function in the legal system. (3)

FPY 290 Undergraduate Research in Forensic Psychology 1
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. FPY 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

FPY 300 Forensic Mental Health Law
This course will examine the interaction between clinical psychology and the legal system. It will explore the knowledge and skills needed by clinicians in the courtroom as well as the case law and policies that determine the role of the clinician in the legal system. Key topics to be discussed include competency to stand trial, insanity defense, civil commitment, and determination of future dangerousness. Prerequisite: successful completion of FPY 262 or with instructor's permission. (3)

FPY 320 Forensic Neuroscience
An introductory examination of the biological basis of forensic behavior. Included are examinations of the central nervous system, peripheral nervous system, and endocrine system. The role of these systems in topics such as aggression, violence, sexual behavior, attraction, empathy, deception, risk-taking, mental illness, and psychiatric/psychological/neurological disorders may be discussed as they relate to the field of forensic neuroscience.

FPY 325 Child & Adolescent Forensic Psychology
This course will explore the manner in which youth come in contact with the legal system by examining relevant psychological, criminological, and legal literature. The diverse roles children and adolescents play in the justice system as decision-makers, witnesses, victims, and perpetrators will be examined. Topics may include the child witness, children's memory and suggestibility, developmentally appropriate investigative interview techniques, juvenile offenders, juveniles' culpability, and interrogation of juvenile suspects. Prerequisite: Not open to first-year students. (3)

FPY 390 Independent Study in Forensic Psychology
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. (1-3). Prerequisite: permission of the instructor.

FPY 400 Advanced Forensic Psychology
An in-depth examination of empirical research and case law in Forensic Psychology. Emphasis will be placed on the critical analysis of empirical research to better understand the role of psychology in the legal system. The course will cover keys areas that include (but are not limited to) eyewitness identification, jury decision making, and expert testimony. Prerequisite: successful completion of FPY 262. Completion of PSY 295 is strongly recommended. (3)

FPY 450 Prejudice & Discrimination in the Legal System
This course will provide an in-depth examination of the way prejudice and discrimination influence behaviors and decisions in the legal system. Psychological theories of prejudice and discrimination will be covered and then applied to various protected legal classes (such as race, national origin, gender identity, age, disability status, and religion) in both the criminal and civil systems. Application of psychological theory will be done through the analysis of legislation, court cases, and empirical literature. Prerequisite: successful completion of FPY 262 or instructor's permission. (3)

FPY 490 Undergraduate Research in Forensic Psychology 2
Undergraduate Research. This course provides an opportunity for students to obtain 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. FPY 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

FPY 491 Undergraduate Internship in Forensic Psychology
This course provides an opportunity for students to obtain career-related experience directly related the student's program and career objectives. The number of credit hours and scope of the internship undertaken are at the discretion of the faculty member involved. Students are expected to perform three hours of on-site internship-related work per credit hour earned. Students will also be required to complete academic assignments to be determined by the faculty advisor of the internship (1-3); Prerequisite: permission of the instructor

FPY 498 Senior Seminar Research in Forensic Psychology
This course is designed to provide Forensic Psychology majors with a capstone experience. Each student in this course will be required to successfully complete and present a project on a significant question or topic that is being addressed by forensic psychologists currently working in the discipline. This course includes an embedded exit exam. Students must earn at least an average of C- on the exam to pass the course. Prerequisite: Successful completion of PSY 299. Successful completion of the seminar, with a C- or better, is required for graduation. Open only to senior Forensic Psychology majors. (4)

Forensic Science

FSC 190 Intro to Forensic Science
This course provides a broad overview of forensic science, with an emphasis on the chemical and instrumental methods used by forensic scientists to analyze evidence. Students will gain an appreciation for the extent of the scientific background needed for a career in forensic science, develop a basic understanding of the types of evidence collected at crime scenes and the science behind its analysis, and understand the importance of ethics in forensic science (3)

FSC 370 Contemporary & Descriptive Topics in Forensic Science
This course covers current and/or specialized topics in forensic science. Topics are determined by the instructor. (3); Pre-requisite: FSC 190

FSC 375 Forensic Assays
This course is a lecture/laboratory hybrid with emphasis on the chemical, instrumental and physical tests used to analyze forensic evidence. Forensic Assays is a culminating experience for forensic science majors, who will apply principles they have learned in other upper-level chemistry and biology courses to the analysis of specific types of forensic evidence. Emphasis also on importance of meticulous laboratory experiment note-taking/record keeping and oral presentation skills. (4); Pre-requisite: CHE 301

History

HIS 100 History of Nursing
This course is a social and cultural history of nursing. We will examine the pivotal roles that nurses have played in shaping healthcare, especially for marginalized communities, while also addressing the systemic challenges they face, including sexism, racism, and poor working conditions. We will examine the unionization of nurses as a response to historical marginalization and poor wages and working conditions. We will examine the diverse histories

of nurses who have cared for everyone from enslaved persons and immigrants to underserved rural populations, integrating these stories into the larger contexts of war, religion, economics, and public health. We will analyze how nurses have contributed to grassroots movements for justice, offering an urgent call for change in the healthcare system. Finally, we will engage in a critical examination of the structural inequities that continue to affect the profession and the patients it serves. (3)

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 600G Intro to Health Data Science
This foundational course introduces students in the MS in Health Data Science program to the core concepts, tools, and methods that define the field. Emphasizing the unique challenges and opportunities of working with health data, the course integrates statistical reasoning, computational techniques, and domain-specific knowledge to prepare students for applied work in public health, biomedical research, and clinical care settings.

Students will learn to acquire, clean, analyze, and interpret complex health datasets using programming tools such as R, Python, and SQL. Key topics include exploratory data analysis, predictive modeling, machine learning, and effective data visualization, all grounded in real-world health data scenarios including electronic health records, claims data, and large-scale health surveys. The course also explores critical issues in data governance, reproducibility, and ethics, including HIPAA compliance, algorithmic bias, and responsible data sharing.

HOI 605G Python for Informatics and Data Science
This course introduces students to the Python programming language, today's leading data science language. Students will start the semester learning how to install and manage a Python installation. During the course, students will learn fundamental programming skills, including how to use Python to manage and learn from data. By the end of the course, students will know how to develop and deliver data products such as worklists and dashboards.

HOI 610G 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 615G 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 measurements. 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 620 Predictive Modeling for Clinical and Business Outcomes
This course introduces students to predictive modeling techniques and their application to healthcare data using Python. Students will first learn the mathematical and computer science foundations of machine learning such as the bootstrap and Monte Carlo modeling. Students will then learn a set of supervised modeling techniques such as k-means clustering, random forest, Naive Bayes, and XDG Boost. Students will learn how to determine which model to use in a given situation and how to discuss model results with non-technical stakeholders.

HOI 625G 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 635G 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 645G Epidemiology
The study of the distribution and determinants of health-related states or events often thought of as the "cornerstone" science of public health. This course introduces fundamental principles and methods used in epidemiology and applies these approaches to describe and evaluate causal relationships in health problems. (3)

HOI 646G 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 655G 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 665G 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 690G 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 710G 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 720G 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 751G 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 761G 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 V**isual 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 completing HHS 401 for Capstone Experience credit. (3)

HUM 300 Night Visions: The Medical and Cultural Legacy of Sleep and Dreams
This interdisciplinary course examines the cultural, historical, and medical significance of sleep, dreams, and nightmares across diverse societies and time periods. Drawing from medical humanities, psychology, literature, and critical theory, students will explore how sleep functions not only as a biological process but also as a complex cultural phenomenon shaped by social, political, and economic forces. Key topics include the role of dreams in ancient religious practices and psychoanalytic theory, the medicalization of sleep disorders, the commodification of rest in contemporary capitalist societies, and the intersection of sleep with race, class, gender, and disability. Students will engage with a wide range of texts, from classical philosophical works to modern literature, as well as visual art, film, and case studies on sleep disorders. Course assignments are designed to foster critical thinking and interdisciplinary analysis, including dream journals, literary and cultural analyses, case study presentations, and creative projects. By the end of the course, students will have a deeper understanding of how sleep and dreams reflect broader societal values, anxieties, and structures of power. (3); Prerequisite: HUM 115 Voice and Identity

HUM 332 Her Body, His Science: How Medicine Has Overlooked Women
This course rigorously examines the entrenched legacy of misogyny within medical practice and theoretical frameworks. Historically, medical research and healthcare practices have predominantly centered male bodies and perspectives, often marginalizing and adversely affecting women. This course will delve into the historical persistence of these biases and their continuing impact on contemporary medical practices. Through lectures, discussions, and critical analyses of archival materials, students will attain a deeper insight into how gender has shaped medical knowledge and practice, exploring inclusive models that enhance accuracy in understanding the human body. Ultimately, this course aims to cultivate a nuanced perspective on transforming medical practice to effectively serve all genders. (3) Prerequisite HUM115

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 completing HHS 401 for Capstone Experience credit. (3); Prerequisite: COM 115

Law

LAW 101 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)

LAW 300 Elder Abuse
With people living longer lives, the number of elderly individuals is increasing every year. Many factors impact the way people treat elderly individuals, and unfortunately, with the rising number of elderly people in the world, the incidents of elder abuse have increased, as well. This course will address the aging process, review different types of elder abuse and theories regarding why elder abuse occurs, and identify best practices to help recognize, address and prevent elder abuse in the health care, justice and social services fields. (3)

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)

Nursing

NSG 100 Self-Care and Caring
The purpose of this course is to introduce students to the concepts of care and caring which are at the center of our interaction with our patients. This course will demonstrate how care and caring can be integrated into the image of the professional nurse. The history and evolution of nursing, as well as nursing theories will serve as the foundational components that guide the caring nurse. Concepts such as self-care, compassion, communication, advocacy, and collaboration will be incorporated. (2)

NSG 105 Foundation of Professional Nursing
The purpose of this course is to establish a foundation in nursing, beginning with a study of the nurses who have developed the profession through leadership, knowledge and theory. Students will be introduced to the ethics, values, accountability, role, empowerment, nursing process and professional standards. The concepts of health, determinants of health and lived experience will be examined from the individual to population level perspectives. The role of illness prevention in nursing practice will be identified. Introductory content will build a framework for beginning engagement of evidence-based practice, culturally congruent practice, communication skills and practice for quality and safety in healthcare. (2); Prerequisites: NSG 100 Self-Care and Caring and ENG 101 First Year Writing

NSG 200 Nursing Pharmacology
This course provides an in-depth exploration of pharmacology as it relates to nursing practice. It covers the fundamental principles of drug action, including pharmacokinetics and pharmacodynamics, classifications, dosages, administration routes, side effects, and patient education. The course also addresses special considerations in pharmacology, such as the impact of age, weight, and organ function on drug metabolism and efficacy. Ethical and legal aspects of medication administration will be highlighted, preparing students to navigate real-world challenges in clinical settings. Through a blend of theoretical knowledge and practical application, this course aims to equip nursing students with the necessary skills to safely and effectively manage pharmacotherapy for diverse patient populations. (3); Prerequisite: Human Anatomy and Physiology I and II; Corequisite: NSG I Health Promotion and Wellness

NSG 300 Community and Public Health Nursing
This course focuses on the community as client for a population-focused practice of the baccalaureate nurse. Students conduct assessments of individuals, families, and groups to identify health needs and commonly encountered health problems within the population. Research-based findings are critically examined and applied in the process of planning, implementing, and evaluating nursing interventions and care coordination at the primary, secondary, and tertiary levels of prevention. Using an evidence-based framework, students will explore epidemiology; health promotion and disease prevention within groups; individual and family case management, community assessment, and intervention; health information technology; and factors influencing the delivery of and

access to population and community health services. This course includes a clinical practicum learning experience of 45 hours. (3); Prerequisite: Current, valid NYS Nursing License

NSG 305 Evidenced-Based Practice
The purpose of this course is for students to understand how evidence is developed and used to guide nursing practice. The course focuses on identification of practice issues and appraisal and integration of evidence to improve patient outcomes. The research and quality improvement processes, clinical judgment, and interprofessional perspectives are examined. Based on their clinical experience, students will learn to develop a research question and conduct a literature review. Strategies to apply and disseminate evidence supporting best practices will be examined. (4); Prerequisite: ENG 101 First Year Writing and PBH 230 Statistics for Public Health.

NSG 310 Transcultural Nursing
This course examines cultural aspects of health care. Transcultural issues will be explored using theory and the six cultural phenomena that shape care. An emphasis is placed on recognizing contemporary challenges and developing skills needed to provide cultural competency for the baccalaureate nurse. Students will enhance their cultural competency through immersion, research, and discussion. Health care will be studied and applied in a rural, third world setting and the challenges of healthcare delivery in the country will be discussed. The students will enhance their nursing knowledge and expand their cultural understanding to provide support in a global community. (3)

NSG 315 Transformational Nursing Leadership and Management
This course focuses on the theory, processes, skills, and behaviors of leadership and management. Within an increasingly complex and changing healthcare system, the organization and financing of health care will be explored. Theories regarding leadership, management, power, chaos, change, influence, delegation, communication and empowerment are analyzed. Strategies for effective interdisciplinary collaboration are explored. Learning activities are specifically designed to equip baccalaureate nurses with the necessary skills and abilities to expand their sphere of influence and enhance their communication and interaction skills. Effective collaboration and group work are crucial for achieving success within healthcare organizations. (3)

NSG 400 Professional Role Development
The purpose of this course is to assist students in furthering their professional identity development by integrating the principles of advocacy, leadership, evidence-based practice, and quality improvement into their professional roles. The course content is structured to facilitate students' integration of foundational practice knowledge into the formation of a personal nursing philosophy, and utilize the concepts of accountability, professional communication, collaboration, and self-reflection in their professional role development. Students will create a career development plan and explore future life-long learning opportunities. The student will engage in 45 hours of an individualized, precepted clinical experience aimed at extending their practice skills in an area of interest. (3); Prerequisite: Current, valid NYS Nursing License

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 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. Prerequisite: Doctor of Pharmacy Students only.

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.

PAD530 Perspectives of Global Health Care: Issues and Policy
This course presents an interdisciplinary approach to global health with emphasis on addressing health disparities both global and local. : This course provides an introductory survey of global health, with the primary aim to engage and inspire students about the opportunities and challenges of global health. This course provides an introduction to global health issues and policies; the political, economic, and cultural processes of globalization and their impact on population health and healthcare systems. In this course you will explore the varying meanings of health as well as

the range of factors that encourage the health of some and exclude it from others. The global health ethical framework based on human rights, cultural diversity, and social justice will be examined. This course will enhance your understanding of the global dimensions of health and disease, various strategic health initiatives, and correlating healthcare interventions. Attention will be paid to a variety of topics, including HIV/AIDS, human trafficking, infectious diseases, health in reproduction, social determinants of health, and more.

PAD535 Pharmacoeconomics and Health Policy
This course will provide students with an introduction to the principles and techniques of pharmacoeconomics and health outcomes evaluation, and to the methodologies used by decision-makers and stakeholders to draft and implement health policy. 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. It presents key economic principles to describe and analyze 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 +oism, 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)

Philosophy

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-gita contemporary 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 290 Spiritual Healing
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.

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)
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 001 Academic Success for Pharmacy Students
This course is a 1-credit, pass/fail course, for students in the pharmacy program years P1-P3. This is a required course for students on academic probation and an elective for others. The purpose of the course is to provide a support structure for professional development and improvement, where students will work with faculty and staff advisors to establish beneficial academic habits and practices. Students will complete an academic success/improvement plan that will be executed throughout the semester. This will allow for a customized development plan for each student as they progress through the pharmacy program. Professional elective credit may only be obtained once even if students repeat the course in the future. Pre-requisite: PharmD student on probation in prior semester.

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 Introductory Pharmacy Practice Experiences (IPPEs). Doctor of Pharmacy Students.

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 335 Pharmacy Professional Development
This online course builds on concepts introduced in the required Foundations of Pharmacy course (PHM 510). 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. Prerequisite: Doctor of Pharmacy Students.

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.

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. 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. 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.

PHM 541 Pharmacist Licensure Readiness I
The Board Review Program guides learners through a longitudinal NAPLEX and MPJE preparation during their fourth professional year of Doctor of Pharmacy Degree studies. The course runs concurrently with Experiential Education Advance Pharmacy Practice Experience (APPE) rotations. This course reviews topics taught throughout the professional pharmacy program. Through textbook readings, recorded lectures, and NAPLEX-simulated practice assessments, the learners will review and test their knowledge on previously taught topics. Learners will receive regular faculty feedback to help guide their individual study plan. This course helps learners to become familiar with testing-site requirements and procedures for the day of the examination. Learners will prepare to answer NAPLEX-style and MPJE-style questions and continue to hone their testing strategies. The Pharmacist Licensure Readiness course will be graded as a Pass/Fail course with criteria. Learners must receive a Pass in this course to be eligible for graduation. Prerequisite: Doctor of Pharmacy Students.

PHM542 Pharmacist Licensure Readiness II
The Board Review Program guides learners through a longitudinal NAPLEX and MPJE preparation during their fourth professional year of Doctor of Pharmacy Degree studies. The course runs concurrently with Experiential Education Advance Pharmacy Practice Experience (APPE) rotations. This course reviews topics taught throughout the professional pharmacy program. Through textbook readings, recorded lectures, and NAPLEX-simulated practice assessments, the learners will review and test their knowledge on previously taught topics. Learners will receive regular faculty feedback to help guide their individual study plan. This course helps learners to become familiar with testing-site requirements and procedures for the day of the examination. Learners will prepare to answer NAPLEX-

style and MPJE-style questions and continue to hone their testing strategies. The Pharmacist Licensure Readiness course will be graded as a Pass/Fail course with criteria. Learners must receive a Pass in this course to be eligible for graduation. Prerequisite: Doctor of Pharmacy Students.

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. Prerequisite: P3 Doctor of Pharmacy Students.

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 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. 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. 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 end of 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 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; rotational motion; and oscillations and waves. The laboratory portion of the course complements its theoretical component and will, in particular, familiarize students with modern experimental techniques and skills including computerized data collection. (4); Recommended: MAT 121. Lecture and Laboratory

PHY 222 College Physics II
This course is the second part of a two-semester physics sequence and a continuation of Physics I. Basic principles underlying physical phenomena will be studied. These principles form a foundation of our understanding of chemistry, biology, and pharmaceutical sciences. Emphasis will be on solving qualitative and quantitative problems using a variety of mathematical methods. The topics will include physics of fluids and solids; foundations of thermodynamics and kinetic theory; electricity and magnetism; electromagnetic waves and elements of physical and geometrical optics; 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. Prerequisite: PHY 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.

Pre-Professional Pathways

PPP 111 Intro to Health Professions
This course will provide students the opportunity to explore a variety of health professions and gain a better understanding of how each contributes to a comprehensive healthcare team. Working healthcare professionals will be invited to share a day in their lives and the path required to join their profession. Students will develop a plan to prepare for their success in their chosen pre-health pathway. (1)

PPP 380 Preparation for Health Professions
Is a seminar and workshop course designed to prepare students to apply to Health Professions Schools (such as medicine, dentistry, optometry, pharmacy, podiatry, veterinary medicine, etc.). Topics will include health professional school's application process, timeline, entrance exam preparation, personal statement, and interview workshops. This course will consist of lectures, speaker presentations, class workshops, individual meetings, and student presentations. Students will have opportunities to continually evaluate their personal motivation by reflective writing and personal discussions. This course will be tailored to the group of students and the professional schools they are applying to that year- medical, dental, optometry, veterinary medicine, etc. Student assignments will include (but not limited to): reflective writing/ journal entries on shadowing and healthcare issues (ethics, current healthcare in US, etc.), personal statement (drafts and revised version), participation, and student presentations.

PPP 680 Preparation for Health Professions II
Is a structured course designed to address the important components of the application process for graduate health professional programs (ex: Medicine, Physician Assistant, Dentistry, Optometry, etc.) and develop personal competencies to succeed in healthcare. This is a seminar and workshop course that will focus on admissions information (personal statements, timelines, application process, etc.), personal development (goal setting, strengths/ weaknesses, motivation, study skills and learning) and capstone research design (selecting project,

analyzing literature and more) workshops. Students will have opportunities to continually evaluate their personal motivation by reflective writing and individual discussions. Individualized direction and support are an integral part of this course (and the Preparation for Health Professions sequence) for students to successfully craft the best application of themselves and gain entry into Health Professional Schools. PPP 680 is the second course in the Prep for Health Professions series designed for Master's in Biomedical Sciences students.

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 scientific reasoning are addressed in SRA1, with a focus on the processes underlying scientific thought, how science is communicated, and the limits of scientific inquiry. Topics include evolutionary theory, eugenics, ethics in science, and concerns related to advancements in genetics and artificial intelligence. The course emphasizes analysis of scientific writing, elements of effective communication, and the strengths/weaknesses of the scientific method. Upon completion of this course, students will gain a deeper understanding of the scientific mode of inquiry and how these principles help shape scientists.

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. 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. SRA III addresses the critical elements of experimental design and data analysis, and how such information is effectively communicated. Topics include statistical and probabilistic reasoning, experimental design and methods, data analysis and interpretation, and the importance of ethics and communication surrounding data. Upon completion of this course, students will understand how to read and interpret primary literature and will be well-prepared for coursework in the later years of the Pharmaceutical Sciences program. 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.

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. 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. 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. 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 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 introduces 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 111, BIO 121, CHE 111 and CHE 121. Recommended but not required: CHE 211, CHE 221, CHE 311, CHE 415, PHY 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 to allow students to gain expertise, mastery and confidence in these areas. Co-requisite: CHE 221.

PSC 309/609 Pharmaceutical Analytical Techniques 1
This laboratory course serves as an introduction to essential techniques that are foundational to pharmaceutical sciences and complements PAT2. Students can use the PAT sequence as the basis for Capstone and technical training in lieu of Thesis Research. Techniques covered in PAT1 include (but are not limited to) HPLC, mass spectroscopy, dissolution/stability studies, active pharmaceutical characterization studies, 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. **Prerequisites**: Completion of the General Biology/General Chemistry/Organic Chemistry sequence. Prerequisites: BIO 111, BIO 121, CHE 111, CHE 121, CHE 211 and CHE 221. Required laboratory course for BSPS and MSPS students.

PSC 310/611 Pharmaceutical Analytical Techniques 2
This laboratory course serves as an introduction to essential techniques that are foundational to pharmaceutical sciences and complements PAT1. Students can use the PAT sequence as the basis for Capstone and technical training in lieu of Thesis Research. Essential to basic clinical research and biomanufacturing processes is an understanding of how target proteins are expressed in cell systems. Such expression relies on bioengineered plasmid expression vectors. PAT2 introduces students to plasmid engineering using green fluorescent protein (GFP) as a model biologic for understanding how therapeutic drugs are produced in cell systems, purified, and subjected to bioanalysis. Techniques covered in PAT2 include, but are not limited to, plasmid design, PCR amplification of target gene sequences, gene insert ligation and bacterial transformation, bacterial colony screening and verification of transformation, expression of the target biologic, protein purification, and protein analysis. 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: BIO 111, BIO 121, CHE 111, CHE 121, CHE 211 and CHE 221. Required laboratory course for BSPS and MSPS 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. Prerequisites: BIO 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. 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 is 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. Prerequisites: BIO 111, BIO 121. Recommended but not required: BIO 210, CHE 311 and BIO 346.

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. Prerequisites: BIO 111, BIO 121, CHE 111 and CHE 121. Recommended but not required: CHE 211, CHE 221, BIO 346, 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. Prerequisites: BIO 111 and BIO 121.

PSC 322 Physiology/Pathophysiology II
This course sequence will focus on normal physiological principles of homeostatic regulation of the human body. Important anatomical structures, pathologies and disease states will be presented to support underlying physiological regulation. Physiology/Pathophysiology II will include in-depth discussions covering physiology and pathophysiology of the respiratory system, renal system, endocrine systems and gastrointestinal/hepatic systems. Prerequisites: BIO 111 and BIO 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.

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.

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. 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. Prerequisites: BIO 121, CHE 221, PHY212 (Physics I) 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. Prerequisites: PSC 341 or permission of the instructor.

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 the PTP modules. Prerequisites: CHE 211 and CHE 221.

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). 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. Prerequisite: PSC369.

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. 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 on 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. 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. Students 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 (e.g. the ACPHS Student Research Symposium). The faculty mentor will assign the Thesis II grade. 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. 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.

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. Prerequisites: BIO 111, BIO 121, CHE 111 and CHE 121. Recommended but not required: CHE 211, CHE 221, BIO 346, 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.

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 discussions 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. 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 641G Advanced Pharmaceutics I
This course studies the physicochemical principles of physical pharmacy and dosage forms and introduces students to Industrial Pharmacy. It integrates the physical, chemical, and mathematical principles into the terminologies, theories, calculations and strategies of formulation design and quality control. The commonly used excipients, preparation methods, manufacturing approaches, and quality control strategies are also presented. The modular lecture topics include introductions to pharmaceutics and industrial pharmacy, principles of solutions and dispersion products through drug development and approval processes. In this graduate course, students will also apply pharmaceutics principles to case studies, formulation design projects and proposal presentation. (3); Prerequisites: BIO 121, CHE 111, CHE 221, PHY 222 and MAT 111, or permission of the instructor. Recommended but not required: PSC 311, PSC 321 and PSL 331.

PSC 642G Advanced Pharmaceutics II
This course studies 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 and strategies. In this graduate course, students will also apply pharmaceutics

principles to case studies, formulation design projects and proposal presentation. (3 credits) Pre-requisites: BIO 121, CHE 111, CHE 221, PHY 222 and MAT 111, or permission of the instructor.

PSC 646G Regulatory Science
This course provides a comprehensive overview of regulatory science, focusing on the principles and practices governing regulated products. The course will delve into the historical context of regulatory agencies, particularly the FDA, and explore the evolution of regulatory frameworks. Students will gain insights into the diverse range of regulated products, including drugs, medical devices, biologics, combination products, food, cosmetics, tobacco products, veterinary drugs, and dietary supplements. Through a combination of lectures, discussions, and case studies, students will develop critical thinking and problem-solving skills. A significant component of the course is a term project, where students will research a real-world regulated product, analyze its regulatory pathway, and present their findings to the class. Peer review will be incorporated to enhance critical evaluation and communication skills. (3)

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 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 741G Pharmacokinetic Modeling

This course focuses on the fundamental basis of biopharmaceutical and pharmacokinetic principles used in the selection, dosing, monitoring, and evaluation of drug therapy. Application of these principles in evaluating drug literature and developing drug dosage regimens of selected classes of drugs for individual patients will be discussed. Emphasis will be placed on using computer software for solving pharmacokinetic problems. The course will consist of online lectures, case-based tutorials, active learning, and independent projects. (3). **Prerequisites**: Graduate standing or permission of the instructor.

PSC 744G Special Topics in Pharmaceutics: Transdermal and Topical Drug Delivery

The course is designed to familiarize students with transdermal and topical drugs and drug delivery technologies. The course will focus on three core areas: 1) basic principles of transdermal and drug delivery, including skin anatomy and physiology, target sites in skin and mechanisms of transdermal and topical delivery, and physiochemical characteristics of transdermal and topical drugs; 2) approaches and technologies for enhancing delivery of drugs into and through the skin; and 3) preclinical and clinical assessment of transdermal and topical drugs. The design and development of transdermal and topical drugs will be discussed and specific examples from the primary literature of approaches to drug delivery through transdermal and topical strategies will be analyzed and critiqued. Benefits, challenges and limitations associated with this mode of drug delivery will be examined. Students will develop knowledge and understanding of this topic through lectures, in-class discussions and reading and writing assignments. Student achievement of this knowledge will be assessed through exams and presentations. Prerequisite: PSC631G or equivalent.

PSC 750G 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. Prerequisite: permission of the instructor.

PSC 751G Industrial Pharmacy Case Review

This course is to review, reflect, and evaluate the drug development process of a drug product, in a collaborative environment, as a student-driven case study on industrial pharmacy. Students will be guided by faculty instructors to review and present a cohesive drug product development case based on research of published literature, regulatory records, and market information, in multiple disciplines of pharmaceutical, clinical, regulatory, commercialization, marketing, and medical affairs. The case can be either a US FDA approved products with NDA record accessible at fda.gov, or a simulated and well-developed proposal that students have worked through other cocurricular or extracurricular case studies, such as the Value of Industrial Pharmacist Case Competition. Students will work as teams to 1) Assess key product requirements to address an unmet medical need, 2) Access clinical outcomes and safety parameters that provide the optimal medical value to the healthcare system and patient, 3) Predict if proposed strategies can meet or exceed regulatory requirements, 4) Assess patient and provider communications that maximizes product adoption for patients who will benefit most and 5) Evaluate education and training materials that facilitate product adoption in a safe and effective manner. Students also apply their presentation, communication, and collaboration skills to present their evaluations professionally for the strengths and weakness, after self-reflection and peer evaluation. Upon finishing this 1-credit course, students will learn and recognize how various industrial roles work together to create research and develop roadmap, regulatory strategies, marketing launch and medical communication and education plans. This course will develop students' recognition

and skills of evaluation, self-reflection, and peer review, and enhance their exposure to career opportunities in the pharmaceutical industry.

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. 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 thesis research will be completed over 2-3 semesters. 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 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 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. Prerequisite: Doctor of Pharmacy Students.

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 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. Prerequisite: PSL 331 511, Doctor of Pharmacy Students.

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 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. Prerequisites: PSL 511, PSL 512, Doctor of Pharmacy Students.

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 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. Prerequisites: PSL 511, PSL 512, PSL 521, Doctor of Pharmacy Students.

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 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. Prerequisites: PSL 511, PSL 512, PSL 521, PSL 522, Doctor of Pharmacy Students.

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 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. Prerequisites: PSL 511, PSL 512, PSL 521, PSL 522, PSL 531, Doctor of Pharmacy Students.

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) Not open to PSY majors

PSY 110 Foundations of Psychology 1
An overview of the theoretical perspectives, empirical findings, and applications in the major sub disciplines of psychology. Topics to be covered include the history of psychology, psychological research methods, biological bases of behavior, sensation and perception, states of consciousness, conditioning and learning, memory, motivation, emotion, sexuality, health, stress, and basic statistical applications of psychology. Transfer students who have taken Introduction to Psychology elsewhere may receive credit for this course. Not open to FPY majors. (3)

PSY 111 Foundations of Psychology 2
An overview of the theoretical perspectives, empirical findings, and applications in the major sub disciplines of psychology. Topics to be covered include a review of psychological research methods, developmental psychology, cognition and creativity, intelligence, personality, psychopathology, therapies, social behavior, cultural psychology, industrial/organizational psychology, community psychology, and other areas of applied psychology. Not open to FPY majors. (3)

PSY 180 First-Year Psychology Seminar
The First-Year Psychology Seminar is required for new first year Psychology majors at ACPHS. The topic(s) covered in the course will vary from year to year, but the academic focus will be on critical thinking/analysis and college-level writing and oral communication skills particularly relevant in psychology. Time will also be spent on helping new Psychology majors develop important skills that are necessary for college success and understanding the various support systems available to them at ACPHS. Students will be offered opportunities to develop their academic skills by reading, writing, analyzing, and discussing current issues in psychological research and theory. Restricted to first year first-semester traditional PSY majors. Transfer students and students who switch to the Psychology major after their first semester should substitute any other PSY course at the 200 level or above for this requirement. (3)

PSY 200 Human Sexuality
An introduction to the history, empirical evidence, and modern theories of human sexuality. We will examine the nature of and influences on sexual decisions, sex research and theory, the sexual response cycle, love and

communication and sexuality, sexuality throughout the lifespan, sexual orientation, gender identity and sexuality, contraception and pregnancy, sexual dysfunctions and sex therapy, and the commercialization of sex in our society today. (3)

PSY 212 Lifespan Developmental Psychology
This course examines the development of individuals from conception of birth to death. Emphasis is placed on psychological research and theories about how learning, emotion, cognition, personality, social interactions, and physical processes change over time with growth, maturity, and aging. Students will learn to critically analyze and apply key theories and empirical evidence to understand the changes that occur across the lifespan. This course is not open to PSY or FPY majors. Students may not take this course for credit if they have already completed PSY 250, PSY 252, and/or PSY 254. (3)

PSY 250 Developmental Psychology: Childhood
This course involves the study of the major frameworks of child development and psychology. Topics to be covered include principles of development, prenatal development and birth, infancy, attachment and separation, early experience, deprivation and plasticity, cognitive development, language development, pro-social behavior and moral development, and gender typing and identity from conception until pre-adolescence. Emphasis will be placed on the complex and dynamic physiological, psychological, social, and ecological variables that influence early human development. (3)

PSY 252 Developmental Psychology: Adolescence & Emerging Adult
This course offers an empirical study of physical, cognitive, social, and emotional development through adolescence and emerging adulthood. Emphasis is on the predictable crises and developmental tasks faced during each period for a wide variety of cultures and countries. Topics include puberty, identity formation, autonomy, maturity, sexuality, education, work, dating and love, as well as the influence of media on development. (3)

PSY 254 Developmental Psychology: Adulthood & Aging
This course will provide an overview of the theoretical perspectives and empirical findings throughout the study and history of aging from mid- to late adulthood. Topics include biological underpinnings of aging and health, trajectories of memory and intellectual functioning across older adulthood, cognitive decline and growth in old age, personality and coping, social interactions, love, employment, retirement, mental health and aging, bereavement, caregiving, death and dying, as well as successful aging. (3)

PSY 290 Undergraduate Research in Psychology 1
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. PSY 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

PSY 292 Motivation
An examination of the factors that serve to initiate, maintain, and direct human and animal behavior. Theories and research in motivation from the biological, behavioral, and cognitive/social perspectives will be considered. (3)

PSY 295 Research Methods & Statistics 1
An introduction to psychological research strategies and statistical applications. Topics covered include searching the literature, measurement, validity, developing and writing hypotheses, descriptive studies, correlational design,

experimental design, sampling, research ethics, descriptive statistics, and correlation. Students will design a novel, empirical study; Prerequisites: PSY 101, PSY 110 or PSY 111. (4)

PSY 299 Research Methods & Statistics 2
A continuation of PSY 295, it is strongly recommended that students take this course in the semester immediately following PSY 295. This course involves further examination of psychological research strategies and statistical applications, such as correlation coefficients, regression, probability, the logic of inferential statistics, t-tests, ANOVA, using statistical analysis software, research ethics approval, drawing conclusions from research, and APA writing style. In this course, students will complete the psychological study designed in PSY 295, including data collection, data analysis, and submission of a formal research report. Prerequisite: Successful completion of PSY 295. (4)

PSY 310 Social Psychology
An analysis of individual behavior in social situations through the use of the scientific method. Emphasis will be placed on empirical research in the areas of social perception, cognition, attitude development and change, prejudice, the self, interpersonal attraction, love, social influence, group dynamics, altruism, and aggression. (3)

PSY 320 Biopsychology
An introductory examination to the nervous system and the biological basis of behavior and cognition. Included are examinations of the central and peripheral nervous systems and their respective roles in learning, memory, biological rhythms, homeostasis, sleep, health, and stress. (3)

PSY 330 Neuropsychology
The purpose of this course is to provide a detailed understanding of brain/behavior relationships in humans. Students will learn the neural substrates (cortical and subcortical) responsible for producing behavioral deficits following different forms of brain damage. Topics may include neural plasticity, neuropsychiatric & neuropsychological disorders, neurodevelopmental disorders, neurological disorders, and neuropsychological assessment.

PSY 342 Children's Thinking
Children's understanding of the world changes dramatically with development. How do they learn about and make sense of the world around them? This course will explore central issues in the study of cognitive development from birth through adolescence, including developmental changes in perception, language, memory, problem solving, and conceptual understanding. The course will also provide an in-depth look at major theoretical perspectives in cognitive development, including Piaget's constructivist approach, the information processing approach, and the sociocultural approach. (3)

PSY 345 Introduction to Psychopharmacology
This course will review the behavioral and cognitive effects of both psychopharmacological treatments and drugs of abuse and their corresponding pharmacokinetic and pharmacodynamic properties. Drug treatments for clinical disorders such as depression, mania, anxiety disorders, insomnia, schizophrenia, epilepsy, Parkinson's disease, Alzheimer's disease, and stroke may be examined.

PSY 352 Health Psychology
An examination of the applications of psychological research and theories to physical health. Topics covered include stress and coping, theories of health behavior, changing health behavior, health protective and health compromising behaviors (e.g., diet, sleep, substance use), the relationship between health care professionals and patients, and

specific chronic diseases (e.g., cardiovascular disease and cancer). Throughout the course, a biopsychosocial model of health will be emphasized. (3)

PSY 363 Psychopathology
An introduction to the theoretical and empirical approaches to adult psychopathology, including discussion of biological, psychological, social, cultural, and historical factors. Emphasis will be placed on the etiology, prognosis, and prevalence of the major mental disorders defined by the DSM-V-TR. The course covers major categories of psychiatric diagnoses and psychological distress, including Anxiety, Mood, Eating, Sexual, Substance-Related, Personality, and Schizophrenia-Spectrum Disorders. (3)

PSY 364 Psychopathology in Childhood & Adolescence
An introduction to the theoretical and empirical approaches to child psychopathology, including discussion of biological, psychological, social, cultural, and historical factors. Emphasis will be placed on the etiology, prognosis, and prevalence of the major mental disorders defined by the DSM-V-TR. This course covers major categories of psychiatric diagnoses and psychological distress, including neurodevelopmental disorders, behavioral and emotional disorders, and problems related to physical and mental health. (3)

PSY 365 Introduction to Psychotherapy
An introduction to the major systems of psychotherapy, including psychodynamic, existential, experiential, interpersonal, exposure, behavioral, cognitive, third wave, systemic, multicultural, and integrative approaches. Theories, techniques, processes and assessment of the practice of therapeutic approaches will be discussed with emphasis on empirical approaches and case studies. Prerequisite - PSY 363 Psychopathology is strongly recommended. (3)

PSY 375 Sensation & Perception
An examination of the psychophysiological processes of gathering and interpreting information from the world around us through sound, touch, taste, olfaction, and vision. The innate, neural, and learned aspects of sensation and perception will be considered.

PSY 380 Special Topics in Psychology
This course is offered on an occasional basis as a means of providing Psychology majors and faculty with the opportunity to explore a particular area of study not normally covered in the major. (1 to 4)

PSY 385 Eating Disorders & Body Image
This course provides an overview of eating disorders and body image from a clinical science perspective. It covers eating disorders, feeding disorders, and body dysmorphic disorder as recognized by the American Psychiatric Association, as well as other disordered eating, body image-related, and weight-related behaviors. It examines theoretical foundations, risk factors, assessment, treatment, and prevention of these issues. Special attention is paid to sociocultural influences on body image and disordered eating, as well as issues of diversity related to these topics. (3)

PSY 390 Independent Study in Psychology
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. (1-3). Prerequisite: permission of the instructor.

PSY 391 Learning & Memory
An overview of the major theories that attempt to account for the dynamics of behavior and learning and their neurobiological mechanisms in human and non-human animals. Topics will include non-associative and associative learning processes, working memory, and long-term memory. Emphasis will be on the empirical research findings that describe these processes.

PSY 400 Personality
An in-depth examination of the major personality theorists, including Psychodynamic, Humanistic, Trait, Behavioral, Biological, Social Learning, and Cognitive perspectives. Emphasis will be placed on the evaluation and empirical validity of each perspective. (3)

PSY 402 Psychology of Diversity
Examines psychological theory and research on differences among people and the role this plays with individuals' self-perception, interpersonal and intergroup interaction, and society. We will discuss topics such as how diversity impacts individuals, how individuals incorporate diversity into their identity, how diversity influences social justice, how stereotypes, prejudice, and discrimination influence our perceptions of diversity and effect people who are members of diverse groups (e.g., race, nationality, age, gender, sexual orientation, religion, socioeconomic status, physical abilities or attributes), and how we can promote fairness and equity in the world around us. (3)

PSY 410 Psychometrics
An overview of the psychological and statistical techniques applicable to the measurement of human behaviors and characteristics, with emphasis on theoretical constructs and social issues underlying psychological testing. Topics included test construction, sampling, reliability, validity, interpretation, factor analysis, and item response theory.

PSY 415 Clinical Psychology
Provides a focused discussion of topics and issues central to the practice of clinical psychology. As a capstone experience for students in the Clinical/Counseling concentration or any student planning a career in mental health, this course explores specific theoretical orientations and approaches such as clinical psychology, neuropsychology, health psychology, clinical child psychology, forensic psychology, and others. This course also includes discussion of ethical concerns, professional issues, graduate training, and careers in mental health. Pre-requisites: PSY 111 and PSY 363 or equivalent. (3)

PSY 440 Death & Dying
This course will provide an overview of the theoretical, psychological, and cultural perspectives of death, dying, and bereavement. Topics include attachment and loss throughout the life cycle; grief, mourning, and bereavement; helping the bereaved cope; individual differences related to preparation, adjustment and coping; hospice care; aid in dying; the development of attitudes and anxiety regarding death and dying; cultural and historical influences on death attitudes and practices; assisted suicide; legal issues; suicide. 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. (3)

PSY 490 Undergraduate Research in Psychology 2
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. PSY 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

PSY 491 Undergraduate Internship in Psychology
This course provides an opportunity for students to obtain career-related experience directly related to the student's program and career objectives. The number of credit hours and scope of the internship undertaken are at the discretion of the faculty member involved. Students are expected to perform three hours of on-site internship-related work per credit hour earned. Students will also be required to complete academic assignments to be determined by the faculty advisor of the internship (1-3); Prerequisite: permission of the instructor

PSY 498 Senior Seminar Research in Psychology
This course is designed to provide Psychology majors with a capstone experience. Each student in this course will be required to successfully complete and present a project on a significant question or topic that is being addressed by psychologists currently working in the discipline. This course includes an embedded exit exam. Students must earn at least an average of C- on the exam to pass the course. Prerequisite: Successful completion of PSY 299. Successful completion of the seminar, with a C- or better, is required for graduation. Open only to senior Psychology majors. (4)

Pharmacotherapy
The Pharmacotherapy sequence is a series 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 areas. 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.

PTP 518 Introduction to Pharmacotherapy/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. The foundation of the patient care process will continue to be emphasized in the pharmacotherapy sequence as well as practiced in the PCW series. 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: Doctor of Pharmacy Students.

PTP 520 GI/Nutrition/Endocrine Pharmacotherapy
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: PTP 518, PSC 321, PSC 322, PSC 371, PSC372, PTP 521, Doctor of Pharmacy Students.

PTP 521 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 areas. 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 GU/Nephrology/Toxicology 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, and 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: PSC321, PSC322, PSC371, PSC571, PHM518, Doctor of Pharmacy Students.

PTP 524 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 areas. 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: Microbiology, PSC369, PHD520, PSC371, PSC372, PTP518, Doctor of Pharmacy Students.

PTP 530 Nephrology/Toxicology/Genitourinary Pharmacotherapy
This course focuses on kidney disease and the genitourinary system and examines therapeutic management of clinical disease states. Building on concepts learned within prior coursework, courses in this series are organized by therapeutic area (e.g. chronic kidney disease, acute kidney disease or injury, drug dosing in kidney disease, and genitourinary conditions are the topics of focus within this course). Course content promotes 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 patient care workshops, other courses in the therapeutic series, experiential education, and pharmacy practice. Prerequisite: PSC321, PSC322, PSC371, PSC372, PTP518, PTP521, PTP524. Doctor of Pharmacy students.

PTP 531 Rheumatology/Oncology Pharmacotherapy
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. 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 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. Prerequisite: PSC371, PSC372, PSC321, PSC322, PSC312, PSC315, PTP518, PTP520, Doctor of Pharmacy Students.

PTP539 PT Neurology/Psychiatry Pharmacotherapy
Is a 4-credit course that explores a range of neurologic and psychiatric conditions. It builds upon foundational knowledge from prior pathophysiology and pharmacology courses. Emphasis is placed on principles of neuropharmacology, psychopharmacology, evidence-based treatment guidelines, and clinical decision-making. Students will learn to select appropriate medications by balancing efficacy with the individual patient's physiological, personal, and social factors. Prerequisites: PSC321, PSC322, PSC369, PSC371, PTP518, Doctor of Pharmacy students.

Public Health

PBH 102 The First-Year Experience
This course is a comprehensive and practical course designed to introduce incoming students to the academic environment, resources, and ACPHS community. This seminar aims to foster the transition to college life and assist students with developing essential skills for success in their academic journey. (1)

PBH 120 Introduction to Public Health
This course will offer an introduction to public health, including discussion of its history, survey of its modern concepts and disciplines, and orientation to the public health approach/style of critical thinking and communication. It will also provide an overview of the current U.S. healthcare and public health delivery systems, and discuss the necessary human resources and institutions that comprise each system. (3)

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 225 Second Year Seminar (Public Health Students)
Seminar in Health Professions or Second Year Seminar is meant to provide all Public Health students with career planning advice as well as to connect you to current professionals and graduate students so that you can learn about their experiences. This seminar also is designed to help you cultivate teambuilding skills, enhance your communication skills, and practice tools that will assist you in your career. Throughout the semester, you will have the opportunity to get hands-on experience with interviewing and career skills, while also receiving professional feedback to improve those skills. Class will meet for approximately 1 hour each week and. attendance is required. (1)

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. (3)

PBH 245 - Intro to Health Systems
This course provides an overview of the health care system in NYS and the US. It examines all facets of the system, including overall organization; services and coverage; the major health care providers and sectors; models of delivery and financing and their implications for clinical practice; regulation; core issues by sector and systemwide; and more. Students will develop an understanding of the system's integral parts, their interrelationship, and implications for patients, providers, system performance, policy, and overall population health. (3)

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 305 Vaccines and Public Health
For more than two centuries, vaccines have been an integral and effective public health strategy. Yet, at times, vaccines and vaccine policies are the subject of intense controversy. This course will explore the unique features of vaccines and related legal, ethical, and behavioral topics that make this public health intervention distinct. Topics covered include: the basic science and epidemiology of vaccine-preventable diseases and vaccines; an overview of U.S. public health vaccination systems and discussion of laws and ethics related to vaccine policies; health promotion themes in the context of addressing undervaccination; and instruction and application of epidemiologic methods to study vaccine effects. (3)

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)

PBH325 Human Trafficking
The topic of Human Trafficking is an important one. Law Enforcement is only beginning to address it in the U.S. as there has been very little training regarding the same. Health care workers and professionals throughout the Criminal Justice system encounter victims, perpetrators and evidence of Human Trafficking frequently. Learning how to recognize these individuals and signs will save lives. This course will prepare students to identify and assist victims of human trafficking, and to work toward eliminating the existence of modern-day slavery throughout the world. (3)

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. (3)

PBH 345 Concepts in Community Health Practice
Public health programs are an essential component of public health practice. This course will familiarize students with the fundamental concepts and features of evidence-based public health program implementation, including assessment, planning, and evaluation, for application in applied public health settings. Students will complete a semester-long, experiential group project in which they will design and deliver a public health program. (3); Prerequisites: PBH 120/SOC 120

PBH 350 Epidemiology
Epidemiology is the study of the distribution and determinants of health-related states or events and is often thought of as the “cornerstone” science in the practice of public health. This course introduces fundamental principles and methods used in the field of epidemiology and applies these approaches to describe and evaluate causal relationships in health problems. (3)

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 Public Health 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

Patient Care Workshop

PCW521 Patient Care Workshop 1
The Patient Care Workshop series 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, PTP518, PHM510. Corequisite: PHD525, PTP521.

PCW522 Patient Care Workshop 2
Patient Care Workshop 2 will build upon the skills and tactics taught in PCW1. More specifically, this workshop will start to build more clinically oriented decision making and SOAP note documentation. For PCW2, students will take a more clinically oriented case-based approach to learning. Cases will be derived from pre-requisite and co-requisite course content. Students will continue to advance the skills learned in PCW1 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: Doctor of Pharmacy Students, PCW521, PTP521, PHD525. Corequisite: PTP520, PTP524.

PCW531 Patient Care Workshop 3
Patient Care Workshop 3 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, PCW531 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. PCW531 is distinguished from previous 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. Prerequisite: Doctor of Pharmacy Students, PCW522, PTP520, PTP521, PTP524. Corequisite: PTP530, PTP539

PCW532 Patient Care Workshop 4
Patient Care Workshop 4 is the final workshop of the PCW series. PCW4 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. PCW4, 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, PCW4 is a 2-credit course secondary to the increased demands of the course. Cases for PCW4 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. Prerequisite: Doctor of Pharmacy Students, PCW531, PTP530, PTP539. Corequisite: PTP531

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 discussion and incorporation of major topical areas within sociology using the theoretical underpinnings. (3)

SOC 120 Intro to Public Health
This course will offer an introduction to public health, including discussion of its history, survey of its modern concepts and disciplines, and orientation to the public health approach/style of critical thinking and communication. It will also provide an overview of the current U.S. healthcare and public health delivery systems and discuss the necessary human resources and institutions that comprise each system.

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 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 Child Abuse and Neglect
This course will give students a comprehensive understanding of child abuse and neglect. Cultural and historical perspectives of child abuse and neglect will be addressed. Different types of abuse will be examined, including child physical abuse, emotional abuse, sexual abuse, and homicide. Students will learn how to identify, respond to and investigate child abuse and neglect allegations, and they will consider the social implications of child abuse and neglect on victims, their families and their communities. With education, professionals in various fields are well positioned to recognize signs of abuse. Special attention will be given to addressing best practices for workers in fields that are in a unique position to see different signs of child abuse, including professionals who work in health care, the justice system, and social services. (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 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); Prerequ**isite: COM 115, HUM 115 or permission of the instructor**

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); Prerequisites: SOC 101, PBH 245 (PBH 245 Pre-req can be waived by Program Directors on a case-by-case basis.)

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 for 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