

E. Coursework and Research Seminar Attendance

The coursework requirements for the first and second years of studies will be as follows.

1. **Core course requirement:** Students will have the option to choose from either the GPILS core course (GPLS 601; 8 credits) or the 2 semester Biochemistry course at UMBC (CHEM 437, 638; 8 credits). The decision regarding the core course(s) for a student will be based upon their grades in previous Biochemistry courses as an undergrad and consultation with the Program Director.
2. All program students will be required to take the following courses in addition to the core course requirement:
 - Advanced Biochemistry (GPLS 709; Spring)
 - Advanced Molecular Biology (GPLS 701; Fall)
 - 2 semesters of Adv Topics in Biochem (GPLS 713 Spring years 1 and year 2)
 - 2 advanced courses (at least 1 at UMBC; i.e. with CHEM numbering)
 - Lab rotations (GPLS 609 or CHEM 602)
 - 2 semesters of Biochemistry Seminar (GPLS 608 or CHEM 713)
 - 1 semester of Research Ethics (CIPP 907)

Year 1 - Fall Semester

GPLS Core (credits)

GPLS 601 (8)
GPLS 609 Lab Rotations (3)
or CHEM 602 Lab Rotations (3)

Biochem Core (credits)

CHEM 437 Biochem I (4)
GPLS 609 Lab Rotations (3)
or CHEM 602 Lab Rotations

Year 1 - Spring Semester

GPLS Core (credits)

GPLS 709 Adv Biochem (3)
Adv course #1 (UMBC or UMB)*
GPLS 713 Adv Topics in Biochem (2)
GPLS 608 or CHEM 713 Seminar (1)

Biochem Core (credits)

CHEM 638 Biochem II (4)
GPLS 709 Adv Biochem (3)
GPLS 713 Adv Topics in Biochem (2)
GPLS 608 or CHEM 713 Seminar (1)

Year 2 - Fall Semester

GPLS Core (credits)

GPLS 701 Adv Molecular Biology (3)
Adv course #2 (UMBC or UMB)
GPLS 608 or CHEM 713 Seminar (1)

Biochem Core (credits)

GPLS 701 Adv Molecular Biology (3)
Adv course #1 (UMBC or UMB)
GPLS 608 or CHEM 713 Seminar (1)

Year 2 - Spring Semester

GPLS Core (credits)

GPLS 713 Adv Topics in Biochem (2)
CIPP 907 Research Ethics (1)

Biochem Core (credits)

GPLS 713 Adv Topics in Biochem (2)
CIPP 907 Research Ethics (1)
Adv course #2 (UMBC or UMB)

Year 3 through Finish

Doctoral Research (12 total credits)
GPLS 899 or CHEM 899
Attend Weekly Seminars and Dissertation Defenses

Doctoral Research (12 total credits)
GPLS 899 or CHEM 899
Attend Weekly Seminars and Defenses

*The advanced courses can be taken in any semester of the 1st two years; a maximum of 20 credits/yr can be taken. Above is just one option for scheduling the two advanced courses; however, all courses must be completed at the end of the Spring of year 2.

ADVANCED COURSES (a partial list; at least one CHEM designation must be chosen, and at least 5 credits in total)

CHEM 601	Special Topics in Chemistry (i.e. NMR, X-ray, subject varies) (3)
CHEM 631	Chemistry of Proteins (3)
CHEM 633	Biochemistry of Nucleic Acids (3)
CHEM 635	Biochemistry of Complex Carbohydrates (3)
CHEM 640	Special Topics: Molecular Structure (3)
CHEM 642	Physical Biochemistry (3)
CHEM 644	Molecular Modeling in Biochemistry (3)
CHEM 672	Enzyme Reaction Mechanisms (3)
CHEM 684	Special Topics in Chemistry (subject varies) (3)
GPLS 616	Molecular Mechanisms of Signal Transduction (3)
GPLS 625	Fundamentals of Membrane Transport - Ion Channels (3)
GPLS 626	Fundamentals of Membrane Transport – Carrier Mechanisms (3)
GPLS 628	Advances in Molecular Medicine (2)
GPLS 635	Bacterial Genetics (4)
GPLS 665	Special Topics: Cancer Biology (3)
GPLS 714	Muscle: Contractility & Excitation-Contraction Coupling (3)
GPLS 715	Muscle Cell Biology and Development (3)
GPLS 716	Applied Bioinformatics (2)
GPLS 720	Fluorescence Spectroscopy (2)
GPLS 769	Advances in Immunology (2)

For updated courses & descriptions at UMB, check the current Graduate Catalog at:
<https://www.graduate.umaryland.edu/policies/>

For updated courses & descriptions at UMBC, check the UMBC Graduate Catalog at:
https://chemistry.umbc.edu/files/2013/09/Chem-Graduate-Handbook_New-Version-for-Fall-2017.pdf

ADDITIONAL COURSES. Although your formal coursework is completed after the second year, you may be required by your advisor or training program to take an additional course.

ATTEND RESEARCH SEMINARS AND CPBMB DISSERTATION DEFENSE SEMINARS. Students are required to attend weekly seminars in the Department where you reside as well as attend all of the Dissertation Defense Seminars of Program Students in your School (i.e. UMBC students attend CPBMB student defenses at UMBC and UMB students attend CPBMB student defenses at UMB).