

S. Molecular Medicine Curriculum

Requirements for all Molecular Medicine Ph.D. Students

GPLS 601 Mechanisms in Biomedical Sciences - GPLS Core Course (Fall, 8 cr)

One of the following courses:

GPLS 690 Current Topics in Vascular and Stem Cell Biology (Fall, 1 cr)

GPLS 692 Current Topics in Genome Biology (Fall, 1 cr)

GPLS 691 Molecular Neuroscience Biophys (Fall, 1 cr)

GPLS 644 Intro Membrane Biophysics (Fall/Winter, 1 cr)

CIPP 907 Research Ethics (meets monthly Aug-May) - No credit or Registration

GPLS 647 Molecular Medicine Survival Skills (Fall, 2 cr)

Lab Rotations:

GPLS 609 Lab Rotations Mol Med (Sec 02, 1 cr, P/F)

Students register for lab rotation credit after completing all 3 rotations

Seminar Credits (2 seminar credits must be earned before graduation):

GPLS 608 Seminar Mol Med (Sec 02, 1 cr, P/F)

Students register for seminar credit during the semester when they present at the Molecular Medicine Seminar Series

GPLS 608 Seminar Mol Med (Sec 02, 1 cr, P/F)

Students register for seminar credit for the semester in which they defend their Thesis Proposal.

Additional Requirements by Track

Students are expected to enroll for 6-8 academic credits/semester, totaling at least 12 academic credits at the time of the Qualifying Exam.

(1) Required Courses:

Cancer Biology	Molecular Physiology and Pharmacology	Genome Biology
<p>GPLS 790 Advanced Cancer Biology (Spring, 3 cr)</p> <p>GPLS 665 Cancer Biology: From Basic Research to the Clinic (Fall, 3 cr)</p>	<p><u>Physiology:</u> GPLS 645 Cell and Systems Physiology (Spring, 3 cr)</p> <p>GPLS 750 Topics in Molecular Medicine (Fall, 2 cr)</p> <p><u>Pharmacology:</u> GPLS 607 Fundamentals of Pharmacology (Spring, 2 cr)</p> <p>GPLS 624 Oncopharmacology (Spring, 3 cr)</p> <p><i>or</i></p> <p>GPLS 604 Neuropharmacology (Fall, 3 cr)</p>	<p>GPLS 716 Genomics and Bioinformatics (Spring, 3 cr)</p> <p>GPLS 718 Programming for Bioinformatics (Spring, 1-2 cr)</p> <p>GPLS 717 Molecular Genetics and Genomics (Fall, 3 cr)</p>

(2) Elective Courses:

Students have maximum flexibility in selection of electives based on their interests, research needs and career goals. Elective credits may be used to fulfill course work required by Training Grants.

Elective Courses for all Tracks¹:

Spring

GPLS 607 Principles of Pharmacology (2 cr)
GPLS 624 Molecular Oncopharmacology (3 cr)
GPLS 625 Ion Channels (2 cr)
GPLS 626 Membrane Carriers and Transporters (2 cr)
GPLS 627 Developmental Neurobiology (3 cr)
GPLS 641 Systems and Cognitive Neuroscience (3 cr)
GPLS 645 Cell and Systems Physiology (3 cr)
GPLS 702 Basic Immunology (3 cr)
GPLS 709 Advanced Biochemistry (3 cr)
GPLS 710 Principles of Microbial Pathogenesis (3 cr)
GPLS 712 Human Cytogenetics (2 cr)
GPLS 714 Muscle: C&E – Contraction Coupling (3 cr)
GPLS 721 Imaging Methods in Membrane Biology (2 cr)
GPLS 737 Proseminar in Exp Design (2 cr)
GPLS 790 Advanced Cancer Biology

Fall

GPLS 604 Neuropharmacology (3 cr)
GPLS 616 Molecular Mechanisms of Signal Transduction (3 cr)
GPLS 620 Synaptic Physiology/Pharmacology (3 cr)
GPLS 623 Molecular Toxicology (3 cr)
GPLS 631 Cardiac Cellular Physiology (2 cr)
GPLS 635 Bacterial Genetics (4 cr)
GPLS 644 Intro to Membrane Biophysics (1 cr)
GPLS 665 Cancer Biology: From Basic Research to the Clinic (3 cr)
GPLS 701 Advanced Molecular Biology (3 cr)
GPLS 704 Principles of Virology (3 cr)
GPLS 706 Human Genetics Seminar (1 cr)
GPLS 705 Basic Human Genetics I (4 cr)
GPLS 717 Molecular Genetics and Genomics (3 cr)
GPLS 722 Genetics and Metabolism (2 cr)
GPLS 750 Topics in Molecular Medicine (2 cr)
GPLS 769 Advances in Immunology (2 cr)

¹Some courses are offered only every other year.

Course information and prerequisites are available online in the GPILS Course Catalog http://lifesciences.umaryland.edu/Pages/course_catalog.aspx.

NOTE: Other Graduate School courses may qualify as electives, but are subject to approval, as they must be relevant coursework towards the PhD degree.