Penn State College of Medicine
MD/PhD Program

2010/2011
Student Handbook
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The mission of the Pennsylvania State University MD/PhD program is to prepare you to join the next generation of physician-scientists by engaging you in an environment that fosters intellectual curiosity, scientific rigor, and interdisciplinary collaboration while you acquire the fund of knowledge and skills needed to excel in research and as a compassionate physician. We pride ourselves on being available to you to provide guidance as you develop your interests and skills while meeting the challenges of physician scientist training. During the process, we encourage you to reach out to fellow students, faculty and trainees for advice, discussion, study groups, camaraderie, etc. Teamwork and mentorship is integral to success in both science and patient care. We hope that in turn through participation in our programmatic activities and in interactions with fellow students that you’ll help to guide the students in the classes behind you. As MD/PhD students, the basic policies and procedures for the graduate school and medical school apply to you. We’ve designed the handbook as a reference source for your pursuit of the dual degree. We are excited to welcome you into our program and look forward to actively participating in your education, training and career development over the next few years as you transition from college graduate to resident physician and beyond.

Robert Levenson, PhD, co-Director
Diane Thiboutot, MD, co-Director
Barbara Koch, Program Administrator

Helpful Websites:
- MD/PhD Program web site
  - [http://www.pennstatehershey.org/web/mdphd/home](http://www.pennstatehershey.org/web/mdphd/home)
- Medical Student Affairs
  - [http://www.pennstatehershey.org/web/md/home](http://www.pennstatehershey.org/web/md/home)
- Graduate Student Affairs
  - [http://www.pennstatehershey.org/web/gsa/home](http://www.pennstatehershey.org/web/gsa/home)
- Faculty Research Expertise Database (FRED)
  - [http://www.fred.psu.edu/nav/about.htm](http://www.fred.psu.edu/nav/about.htm)
- Penn State University
  - [http://www.psu.edu](http://www.psu.edu)
- Clinical and Translational Sciences Institute Career Counseling
  - [http://sciencecareers.scientemag.org/career_magazine/previous_issues/articles/2009_05_15/caredit.a0900061](http://sciencecareers.scientemag.org/career_magazine/previous_issues/articles/2009_05_15/caredit.a0900061)
CONTACT INFORMATION

MD/PhD Administrator
Barbara J. Koch, Room C1805, x1188

Graduate Student Affairs Administrator
Kathleen Simon, Room C1712, x6608

Registrar
Diane Gill, Room C1802, x4101

Financial Aid
Joetta Bradica, Room C1802, x4102

USMLE & Clinical Clerkships
Diane Gill, Room C1802, x4101

Rent Office, Bursar
Wendy Lingle, Room C1607, x6126

General Residency Information in Student Affairs
Amy Bockis, Room C1802, x7051

MD/PhD Student Residency Counseling
Leslie Parent, MD, Room C6860, x3997

MD/PhD Clinical Exposure Program
Edward Gunther, MD, Room C5840F, x7022

Student Counselor
George Blackall, Psy. D.
gblackall@psu.edu
Room C7833, x6148
MD/PHD STEERING COMMITTEE

Robert Levenson, PhD, co-Director
Pharmacology, C7763/HCAR 3307, x4545

Diane Thiboutot, MD, co-Director
Dermatology, C7801, x7437

Keith Cheng, MD, PhD
Pathology, C7866, x5635

James Connor, PhD
Neurosurgery, C3848, x4541

Edward Gunther, MD
Medicine/Hematology/Oncology, C5840F, x7022

Leslie Parent, MD
Medicine/Infectious Disease, C6860, x3997

Stephen Rannels, PhD
Cellular & Molecular Physiology, C4765C, x6203

Steven Schiff, MD, PhD
Engineering, Science & Mechanics (UP)
Neurosurgery (COM)
(814) 863-4210

Christopher Siedlecki, PhD
Surgery/Bioengineering, C4864F, x5716

Barbara Koch, Administrator
MD/PhD Program, C1805A, x1188
College of Medicine MD/PhD Training Faculty

Barnstable, Colin, PhD
Bonneau, Robert, PhD
Carrel, Laura, PhD
Cheng, Keith, MD, PhD (SC mbr)
Christensen, Neil, PhD
Connor, James, PhD (SC mbr)
Donahue, Henry, PhD
Eckert, Kristin, PhD
Grigson, Patricia, PhD
Gunther, Edward, MD (SC mbr)
Katzman, Michael, MD
Kester, Mark, PhD
Lang, Charles, PhD
Lazarus, Phillip, PhD
Levenson, Robert, PhD (SC mbr)
Loughran, Thomas, MD

Lynch, Christopher, PhD
Miller, Barbara, MD
Norgren, Ralph, PhD
Parent, Leslie, MD (SC mbr)
Rannels, Stephen, PhD (SC mbr)
Robertson, Gavin, PhD
Rountree, Barth, MD
Schell, Todd, PhD
Shantz, Lisa, PhD
Siedlecki, Christopher, PhD (SC mbr)
Sinoway, Lawrence, MD
Subramanian, Thyagarajan, MD
Thiboutot, Diane, MD (SC mbr)
Undar, Akif, PhD
Vrana, Kent, PhD
Wills, John, PhD

University Park MD/PhD Training Faculty

Birch, Leann, PhD
Cameron, Craig, PhD
Cavener, Douglas, PhD
Chen, Gong, PhD
Glick, Adam, PhD
Harvill, Eric, PhD
Jensen, Gordon, MD, PhD

Keiler, Kenneth, PhD
Luscher, Bernhard, PhD
Mastro, Andrea, PhD
Rolls, Barbara, PhD
Rolls, Melissa, PhD
Schiff, Steven, MD, PhD (SC mbr)
Vanden Heuvel, John, PhD

Note: Please use the Faculty Research Expertise Database to see faculty research information
http://www.fred.psu.edu/nav/about.htm

MD/PhD External Advisors
Lawrence Brass, MD, PhD
Director, MD/PhD Program
University of Pennsylvania

Michael Frohman, MD, PhD
Director, MD/PhD Program
SUNY, Stony Brook, NY

Kerry O'Banion, MD, PhD
Director, MD/PhD Program
University of Rochester, NY

MD/PhD Internal Advisors
Judith Bond, PhD
Chair, Biochemistry

Richard Courtney, PhD
Chair, Microbiology & Immunology

David Good, MD
Chair, Neurology

Berend Mets, MD, PhD
Chair, Anesthesia

Michael Verderame, PhD,
Associate Dean for Graduate Education
MD/PhD Program Requirements/Timeline

M1
- Summer lab rotation prior to matriculation (Laboratory Rotation #1) *mandatory
- May – Choose faculty labs for summer rotations (2 are required)
- Objective Structured Clinical Exam (OSCE) exam in May
- Summer Laboratory Rotations #2 & #3

M2
- Fall—Choose PhD thesis advisor & graduate program
- OSCE exam in March
- June/July—National Boards Step I (USMLE) *must be taken prior to July 31

G1  *Students are expected to start G1 on August 1
- Clinical Exposure Program (one half day per month)
- Fall—Choose PhD Thesis Committee:
- Comprehensive Exam—to be taken in the spring/summer between G1 and G2:

G2
- Clinical Exposure Program

G3
- Clinical Exposure Program

G4
- Clinical Exposure Program
- Thesis Defense

M3
- Clinical Clerkships
- OSCE exam in May

M4
- Clinical Clerkships
- National Boards Step II (USMLE) prior to start of spring semester
- Clinical Skills Exam prior to start of spring semester
- Residency interviews/Match Day
- Graduation
MD/PhD Program Curriculum

Medical 1 (M1)

- Class Schedules
  - MD/PhD students are required to take all courses listed in Table 1
  - Exams must be taken on the dates scheduled unless arrangements are made by the Program Office
  - MD/PhD students take all first year medical student courses and 1 selective graduate course in the spring semester of the first year

Combined MD/PhD Curriculum (Medical Year 1)

Table 1
Integrated MD/PhD Curriculum (Medical Year 1)

DIDACTIC PROBLEM SOLVING MEDICAL COMPONENT

<table>
<thead>
<tr>
<th>Course</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Basis of Medical Practice</td>
<td>Fall (Sept-Oct)</td>
</tr>
<tr>
<td>• Anatomy</td>
<td></td>
</tr>
<tr>
<td>• Embryology</td>
<td></td>
</tr>
<tr>
<td>• Radiologic anatomy</td>
<td></td>
</tr>
<tr>
<td>Cellular and Molecular Basis of Medical Practice</td>
<td>Winter/Spring</td>
</tr>
<tr>
<td>• Biochemistry</td>
<td></td>
</tr>
<tr>
<td>• Histology</td>
<td></td>
</tr>
<tr>
<td>• Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>• Molecular Genetics</td>
<td></td>
</tr>
<tr>
<td>• Pharmacology</td>
<td></td>
</tr>
<tr>
<td>• Physiology</td>
<td></td>
</tr>
<tr>
<td>Fundamentals of Clinical Medicine</td>
<td>Fall/Spring</td>
</tr>
<tr>
<td>• Patient/Physician Relationship</td>
<td></td>
</tr>
<tr>
<td>• Patient Interviewing</td>
<td></td>
</tr>
<tr>
<td>• Introductory Physical Diagnosis</td>
<td></td>
</tr>
<tr>
<td>• Core Humanities</td>
<td></td>
</tr>
<tr>
<td>• Biostatistics</td>
<td></td>
</tr>
<tr>
<td>Biological Basis of Disease</td>
<td>Spring</td>
</tr>
<tr>
<td>• Pathology</td>
<td></td>
</tr>
<tr>
<td>• Immunology</td>
<td></td>
</tr>
<tr>
<td>• Microbiology</td>
<td></td>
</tr>
<tr>
<td>DIDACTIC GRADUATE COURSE</td>
<td>Spring</td>
</tr>
<tr>
<td>• Choice of pre-selected courses</td>
<td></td>
</tr>
</tbody>
</table>

OTHER

- Attend Weekly MD/PhD Faculty Research Talks  Fall/Spring
- Attend monthly MD/PhD Student Seminar Series Year round
- Attend Annual MD/PhD Retreat               Spring
- Summer Lab Rotations                      Before and after M1

- Faculty Research Discussions
  - Held weekly over lunch to give MD/PhD students an idea of research opportunities in participating MD/PhD training faculty laboratories
  - MD/PhD faculty volunteer to give the talks but requests for specific faculty are considered
• MD/PhD Student Seminar Series
  o Held first Tuesday of each month from Noon to 1:00
  o Mandatory attendance
  o See page 22 for more information
• MD/PhD Annual Retreat
  o Mandatory attendance
  o See page 21 for more information
• Objective Structured Clinical Examination (OSCE)
  o In May or June at the end of M1, exam in which they meet with approximately five trained professional patients for ten minutes each and the students assess the patient’s complaint. Grading is either adequate or inadequate
• Summer Laboratory Rotations
  o Rotations are done in order to gain research experience in several different areas, learn multiple lab techniques and to enable students to choose a thesis advisor that matches their interests.
  o Pre-matriculation lab rotation – a 4-6 week lab rotation (minimum 4 weeks) is required prior to matriculation in August. Incoming students may choose a lab from the training faculty list and receive assistance from the program co-Directors in the selection process. The student may discuss with the program directors potential opportunities for rotations with faculty who are interested in joining the program faculty. The rotation can be completed any time prior to matriculation
  o Two additional summer lab rotations must be done, each being at least 6 weeks in duration starting the end of May of M1 and continuing until classes start in August for M2
  o Choose 3-5 MD/PhD faculty with whom you would like to rotate, keeping in mind that only 2 MD/PhD students are allowed in each lab during graduate years (unless permission is granted by the MD/PhD co-Directors) and the faculty must have funding to support a student.
  o Speak to your chosen faculty about the research opportunities in their laboratories.
  o Contact Barb Koch who will set up a meeting with the MD/PhD student and the Program co-Directors to discuss the possible choices for laboratory rotations. The Program co-Directors must approve the student’s choice for lab rotations.
  o Copies of the student’s laboratory rotation schedule will be given to the MD/PhD student, Program co-Directors, the chosen faculty and the MD/PhD Steering Committee.
  o Changes in the rotation schedule can only be done through the MD/PhD office.
  o Each faculty member with whom a student rotates will complete an evaluation form that assesses the student’s performance in the lab. These forms will be kept in the student’s files in the MD/PhD Program office.

Medical 2 (M2)
• MD/PhD students will take all second year medical courses listed in Table 2 that includes the graduate course “Biological Basis of Human Health & Disease”
### Table 2
Integrated MD/PhD Curriculum (Medical Year 2)

**DIDACTIC PROBLEM SOLVING MEDICAL COMPONENT**
Medical Sciences, Lecture and Case-Based  
- Hematology  
- Cardiology  
- Pulmonary Medicine  
- Renal  
- Gastroenterology  
- Neural & Behavioral Sciences  
- Integument & Musculoskeletal  
- Reproductive Medicine  
- Endocrinology  
- Dermatology  

Fundamentals of Clinical Medicine  
- Evidence-based Medicine  
- Social & Behavioral Aspects of Illness & Care  
- Advanced Physical Diagnosis  
- Psychiatry  
- Medical Ethics

**ADVANCED GRADUATE COURSES**
Biological Basis of Human Health & Disease

**OTHER**
- Attend monthly MD/PhD Student Seminar Series  
- Attend Annual MD/PhD Retreat  
- Attend Graduate Program Seminar Series

- Choosing a graduate thesis advisor and graduate program  
  - **Policy Regarding Graduate Mentors**
    - It is expected that students will carry out their research in a laboratory of a Penn State faculty member either at Hershey or University Park. Students may also carry out research at NIH as part of the Graduate Partners Program with prior permission from the co-Directors. It is possible, however, that during his/her research training, a student’s advisor may leave PSU for another academic appointment. If this should occur, the following guidelines apply.
    - If a student has not yet completed all the academic requirements for the PhD degree, including successful completion of the comprehensive exam, then in order for the student to obtain their PhD from Penn State, they must seek a new research lab at PSU to complete their research training. If the student wishes to continue working with the advisor, and hasn’t completed their PSU academic requirements, they may consider transferring to an appropriate program (an MD/PhD program or graduate program) at the advisor’s new institution.
    - If the student has completed all academic requirements for the PhD, and the advisor leaves, the student may elect to finish his/her thesis project in the advisor’s lab at the new institution, provided...
that a) there is continued guarantee of funding, b) the thesis committee approves, c) the student continues to have regular (twice yearly) meetings with the thesis committee, d) the student makes every effort to present a seminar once a year, preferably in conjunction with committee meetings or thesis defense, and e) student makes every effort to attend the annual MD/PhD retreat.

- The choice of a graduate thesis advisor and graduate program should be made in consultation with the Program co-Directors after all summer lab rotations are completed. Contact Barb Koch to set up a meeting for this discussion. Speaking to graduate program directors is recommended to make sure the student knows the requirements since each graduate program is different.
- Graduate Program degree requirements can be found in each program web site accessed through the Graduate Student Affairs web site/Graduate Programs/ Degree Requirements at [http://www.pennstatehershey.org/web/gsa/home](http://www.pennstatehershey.org/web/gsa/home)
- Barb Koch will contact the MD/PhD student to fill out an official Penn State application and will send the application and an official undergraduate transcript to Graduate Enrollment at University Park to enroll the student in the graduate school and program.
- After the student is enrolled, two transcripts will be created. A medical transcript, which includes all courses taken (both medical and graduate) and a separate graduate transcript that includes only graduate courses. The graduate transcript will show the GPA plus exam information.
- Students are then listed as IMG or Integrated Medical Graduate students in the Graduate School at University Park until passing the thesis defense.
- Students can access their unofficial transcript via eLion.
- It is advisable to choose the graduate program early in M2 to be sure of available space in the lab of your choice.

- Objective Structured Clinical Examination (OSCE) is taken in March of M2
- United States Medical Licensing Exam (USMLE) Step 1
  - MD/PhD students will receive a packet of information from the Student Affairs Office in the fall of M2
  - Exams are scheduled in early to mid summer after completing M2 and must be taken and passed before July 31 and before starting graduate years
  - The Step 1 exam is taken in place of the graduate Candidacy Exam
  - If a student fails Step 1, they are required to retake the exam as soon as it can be rescheduled and after allowing ample time to study.
    - a special Candidacy Exam could be created by the Steering Committee in which the student is required to pass. This would be on an individual basis
  - A copy of the Step 1 score report should be given to the Program Administrator to keep in the student’s file
- Training for the electronic medical record system (PowerChart)
  - Training is required for the clinical exposure program
  - Online training is coordinated through the Office of Medical Education (contact Lureye Myers) and is offered during the last 2 weeks of June
- Mailbox keys
  - During the summer, students should return their student mailbox key to the Post Office since they will now be using their graduate advisor’s mail code number, not their student box.
At the end of the third year of medical school or M3, MD/PhD and medical students will take another OSCE exam. This exam must be passed in order to continue in the fourth year of medical school.

In the fourth year of medical school or M4, students must take the USMLE Step 2 Clinical Knowledge exam and also the Clinical Skills Exam prior to December 31.

**Graduate 1 (G1)**

*Students are expected to start on August 1*

- **Choosing a doctoral thesis committee**
  - The committee should consist of 4 or more faculty who are members of the Graduate Faculty
    - at least 2 in the major field
    - 1 outside the major but must be a member of the graduate faculty not connected in appointment or budget to the doctoral program
    - MD/PhD students must have at least 1 member of the Steering Committee on their doctoral committee
    - see the Graduate Degree handbook for more information on selecting a committee
    - consult the graduate advisor for suggestions and guidelines
  - Please see your graduate program secretary to fill out a committee request form.

- **Clinical Exposure Program**
  - During graduate years (G1-G4), the MD/PhD students will participate in the Clinical Exposure Program, which is coordinated by Dr. Edward Gunther. Students will spend one-half day each month during all of their graduate years with a selected preceptor in a clinic on campus.
  - This preceptor is identified by the student and Dr. Gunther and who ideally is someone in the same area as the student’s research or clinical interest.
  - A short research description and a clinical interest should be sent to Dr. Gunther in July or August
  - If students are located off campus, faculty in a clinic at a nearby hospital will be chosen
  - The Clinical Exposure Programs runs with the academic year, September through May. The summer months are optional. Students must stay with their preceptor for the full year but can change after each year if they prefer.
  - Communication between the student and their advisor is important in making sure the advisor is aware of the time the student will be out of the lab.
  - A firm commitment is required by the student to attend all scheduled sessions with the preceptor since the preceptor would be counting on the student’s participation.
  - Many of the MD’s have research backgrounds and are very good mentors for this purpose.
  - Students will be evaluated by their preceptors who will fill out an evaluation form at the end of each year. The evaluation will be reviewed by Dr. Gunther and the program co-Directors.

- **Comprehensive Exam**
  - This exam should be scheduled during the summer after completing G1 and starting G2
The graduate program secretary should be consulted for required paperwork and forms no later than 3 weeks prior to the date of the Comprehensive Exam.

Graduate 2 (G2)
- Continuation of research project
- Take Comprehensive Exam if not taken earlier
- Continue with Clinical Exposure Program
- Participate in graduate activities of the graduate department or program such as seminars, colloquium, etc.
- Attend monthly MD/PhD Student Seminar Series
- Attend annual MD/PhD Retreat

Graduate 3 (G3)
- Continuation of research project
- Continue with Clinical Exposure Program
- Participate in graduate activities of the graduate department or program such as seminars, colloquium, etc.
- Attend monthly MD/PhD Student Seminar Series
- Attend annual MD/PhD Retreat

Graduate 4 (G4)
- Decision to finish graduate school and return to clinical clerkships should be made in the Fall to give Student Affairs (Diane Gill) ample time to set up the clinical clerkship schedule for M3
  - Students may choose from templates designed for MD/PhD students that permit flexible entry to M3 in July, August or September
- Write Thesis
- Thesis seminar and defense
  - Consult graduate program advisor and secretary for details on requirements, necessary forms and procedures
- Attend monthly MD/PhD Student Seminar Series
- Attend annual MD/PhD Retreat
- **MD/PhD students must have at least one first-author paper accepted for publication prior to returning to M3 and have completed and submitted their thesis to the Thesis Office at main campus. Details regarding thesis filing should be directed to Kathy Simon or Barb Koch**
- Students returning to medical school will be notified of the dates for the Clinical Skills week in June and must participate. This is a refresher course on basic patient interaction skills. Island #1 is held the following week. Attendance is mandatory for both weeks.

Medical 3 (M3)
Prior to returning to M3, the thesis defense must be passed, thesis revisions completed and submitted to the thesis office. Students **must have at least 1 first-author publication accepted for publication.**
• Required clerkships include Medicine (8 weeks), Surgery (8 weeks), Obstetrics-Gynecology (6 weeks), Pediatrics (6 weeks), Psychiatry (4 weeks), Family and Community Medicine (4 weeks), and Primary Care Clerkship (4 weeks). Each selective clerkship is 4 weeks in length and each island is one week for a total of 48 weeks of study.
• Clinical Skills week and Island #1 are scheduled in June by the Medical Education Department.
• Start thinking about Residency choices. Amy Bockis in Student Affairs is the contact person and Leslie Parent, MD is the advisor regarding Physician/Scientist residency opportunities.
• Attend monthly MD/PhD Student Seminar Series
• Attend annual MD/PhD Retreat
• OSCE exam is taken in May or June

Medical 4 (M4)
• In M4, students are required to complete a Medicine Acting Internship, Surgical Acting Internship, Humanities selective, Neurology selective and 4 four-week elective months of their choice.
• USMLE Step 2 Clinical Knowledge and Clinical Skills exams should be taken sometime in fall of M4 and must be taken by December 31.
• Attend monthly MD/PhD Student Seminar Series
• Attend annual MD/PhD Retreat
• Match Day is held in March. Amy Bockis is the contact person.
• Return mailbox keys and make sure all bills are paid to the university such as rent, phone, parking & library fees. Students will not be allowed to graduate if they have any unpaid bills. See Wendy Lingle in the Bursar’s Office for payment
• Graduation is in mid May
Degree Requirements

Students must satisfy the degree requirements for the MD degree as determined by the medical school and the PhD degree as determined by the graduate school.

The requirements for graduation from the MD/PhD program for The Pennsylvania State University College of Medicine are:

- Satisfactory completion of the required curriculum in medical school and the graduate program, and current BLS (Basic Life Support) certification.
- All graduate school requirements including course work, Comprehensive Exam and Thesis Defense.
- USMLE Steps I and 2 taken and passed. A passing score in the USMLE Step I and Step 2 is required in order to graduate. (see MD/PhD Student Academic Standards)
- Minimum of one first-author paper accepted for publication in a peer-reviewed scientific journal.
- Attendance at monthly MD/PhD Student Seminars
- Attendance at the annual MD/PhD Retreat

Graduate Program Requirements

- *Due to the constant changes in each graduate program’s course requirements, please contact the individual graduate program directors to inquire about the courses you need to take in your early graduate years to fulfill their requirements. Requests to have any courses waived must be discussed and approved by the individual graduate program director.
- Listed below are examples of graduate program course schedules for an MD/PhD student choosing any of these programs. Please meet with your advisor and graduate program director to determine your own, individual schedule.
### Curriculum for the Cell and Molecular Biology Graduate Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
</table>
| M1   | All MD courses  
No graduate courses | All MD courses  
Choose 1 selective graduate course |
| M2   | All MD courses  
Biological Basis of Human Health & Disease | All MD courses  
Biological Basis of Human Health & Disease |
| G1   | Ethics in the Life Sciences  
Seminars  
Journal Club  
Electives | Biostatistics  
Seminars  
Journal Club  
Electives to satisfy credit requirement |
| G2-Gx| Thesis research  
Seminars  
Journal Club | Thesis research  
Seminars  
Journal Club |

### Curriculum for the Neuroscience Graduate Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
</table>
| M1   | All MD courses  
No graduate courses | All MD courses  
Choose 1 selective graduate course |
| M2   | All MD courses  
Biological Basis of Human Health & Disease | All MD courses  
Biological Basis of Human Health & Disease |
| G1   | Ethics in the Life Sciences  
Seminars  
Journal Club  
Cell and Molecular Neuroscience | Biostatistics  
Seminars  
Journal Club  
Systems Neuroscience |
| G2-Gx| Thesis research  
Seminars  
Journal Club | Thesis research  
Seminars  
Journal Club |
### Curriculum for the Physiology Graduate Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>All MD courses</td>
<td>All MD courses</td>
</tr>
<tr>
<td></td>
<td>No graduate courses</td>
<td>Choose 1 selective graduate course</td>
</tr>
<tr>
<td>M2</td>
<td>All MD courses</td>
<td>All MD courses</td>
</tr>
<tr>
<td></td>
<td>Biological Basis of Human Health &amp; Disease</td>
<td>Biological Basis of Human Health &amp; Disease</td>
</tr>
<tr>
<td>G1</td>
<td>Ethics in the Life Sciences</td>
<td>Adaptation to Stress</td>
</tr>
<tr>
<td></td>
<td>Seminars</td>
<td>Seminars</td>
</tr>
<tr>
<td></td>
<td>Journal Club</td>
<td>Journal Club</td>
</tr>
<tr>
<td></td>
<td>Biomedical Science Core course</td>
<td>Selectives</td>
</tr>
<tr>
<td>G2-Gx</td>
<td>Thesis research</td>
<td>Thesis research</td>
</tr>
<tr>
<td></td>
<td>Seminars</td>
<td>Seminars</td>
</tr>
<tr>
<td></td>
<td>Journal Club</td>
<td>Journal Club</td>
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</table>

### Curriculum for the Pharmacology Graduate Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>All MD courses</td>
<td>All MD courses</td>
</tr>
<tr>
<td></td>
<td>No graduate courses</td>
<td>Choose 1 selective graduate course</td>
</tr>
<tr>
<td>M2</td>
<td>All MD courses</td>
<td>All MD courses</td>
</tr>
<tr>
<td></td>
<td>Biological Basis of Human Health &amp; Disease</td>
<td>Biological Basis of Human Health &amp; Disease</td>
</tr>
<tr>
<td>G1</td>
<td>Ethics in the Life Sciences</td>
<td>Biostatistics</td>
</tr>
<tr>
<td></td>
<td>Seminars</td>
<td>Seminars</td>
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<td></td>
<td>Journal Club</td>
<td>Journal Club</td>
</tr>
<tr>
<td></td>
<td>Elective</td>
<td>Homeostasis (Physio 504)</td>
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<tr>
<td>G2</td>
<td>Seminars</td>
<td>Pharmacogenomics and genetics</td>
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<td></td>
<td>Journal Club</td>
<td>Colloquim</td>
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<tr>
<td></td>
<td>Thesis research</td>
<td>Seminars</td>
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<tr>
<td>G3-Gx</td>
<td>Thesis research</td>
<td>Thesis research</td>
</tr>
<tr>
<td></td>
<td>Seminars</td>
<td>Seminars</td>
</tr>
</tbody>
</table>

*Attention MD/PhD Students: Please discuss course selections with your thesis advisor and graduate program director before registering for any graduate courses to make sure you know the requirements for an MD/PhD student. It is YOUR responsibility to make sure you are satisfying all course requirements for your graduate program.*
Course Registration & Transcripts

- Registration must be done in Fall and Spring of each year in the program and is done online using eLion. Complete directions can be found in the Graduate Student Affairs web site; Graduate Students/Continuing Students/Registration.
- Registration must be continuous for graduate courses until the thesis defense is passed.
  - After the Comprehensive Exam is passed, students can register for Thesis Research 600 or Thesis Preparation 601 but must be registered continuously
  - Students must be registered in the semester they are taking their Comprehensive Exam or defending their thesis either for graduate or medical courses
  - Students in their graduate years must be registered for 9-12 credits until passing the Comprehensive Exam. In M1 and M2, medical school credits count toward the required 9-12
  - M1 and M2 students should email Diane Gill (dgill@psu.edu) to register for graduate courses. Registration for medical courses is automatically done by the registrar but must be confirmed on eLion after paying fees (IT, Activity, Disability insurance).
- No course, graduate or medical, may be dropped without prior consent of the Co-Directors of the Program in M1 or M2
- MD/PhD students can access their unofficial transcripts through eLion. Information about this web site will be distributed and covered during new student orientation. Students can print an unofficial transcript from the eLion site and can also order official transcripts at this same site for a small fee
- MD/PhD students will have two transcripts after they are enrolled in the graduate school. During the first two years of medical school, their medical transcript will include both graduate and medical courses. After enrollment in the graduate school, a second, graduate transcript will be created and will include only graduate courses. This graduate transcript will list the student’s GPA and will eventually list the dates of their Candidacy, Exam (USMLE Step 1), Comprehensive Exam, and Thesis Defense.

Academic Standards for MD/PhD Students

Students are expected to comply with the academic guidelines set forth by the medical school and graduate school. MD/PhD students must maintain at least a 3.00 GPA in graduate courses as required by the graduate school. If a student drops below this, they must contact the program office to meet with the Program co-Directors to discuss options. In addition, students are expected to be in the top half of their class in both medical and graduate school. Students are expected to achieve standardized test scores, including the USMLE, at or above the national average (see graphs below). Failure to meet these standards will prompt the MD/PhD program co-Directors and/or Steering Committee to review the student’s progress to decide whether the student should be allowed to continue in the program. Students’ performances will be reviewed at the end of each academic year.

If a student is in violation of professional standards or is placed on academic probation by either the medical or graduate school, their continuation in the MD/PhD program, including their level of support during periods of remediation, will be reviewed by the MD/PhD Steering Committee. Unsatisfactory performance may result in dismissal from the MD/PhD program.
USMLE Step 1

Note: Step 1 minimum passing score was 182 until 2007 when it changed to 185

USMLE Step 2

Notes:

- PSCOM includes both MD and MD/PhD students.
- US includes both MD & MD/PhD students. Separate MD/PhD national averages are not available
- Step 2 minimum passing score was 182 until 2007 when it changed to 184
STUDENT BENEFITS

Stipends
All MD/PhD students will receive a stipend both in graduate school and medical school which will be directly deposited into the account students designate during orientation. During medical school years, this stipend will come from the MD/PhD Program budget. Stipends during medical years will be paid on a 12-month basis. The yearly stipend is divided by 12 so that students have no lapse in stipend. During the last year of medical school or M4, MD/PhD students are paid until they graduate in May. If you wish to view your monthly stipend statement, please go to the ESSIC web site https://ohr.psu.edu/essic/Logon.cfm and use your id and password to access the information.

During graduate years, stipends are paid by the thesis advisor. Appointments are made August 1 through July 31.

Student Health Insurance
All students are encouraged to carry health insurance and are automatically enrolled for single student coverage each year. International students must carry health insurance. The MD/PhD Program will pay the cost of the Graduate Assistant/Fellowship Plan, which is the carrier that Penn State offers only during medical years. Students will be required to pay 20% of the cost during graduate years. If a student has their own carrier or are on their parent’s policy, no reimbursement will be given. If not taking the Graduate Assistant/Fellowship Plan, a waiver form must be filled out on the Graduate Student Affairs website. Health insurance is also available for spouse and children. For more information on student health insurance, see the Graduate Student Affairs web site/Student Services/Health Insurance. The waiver form can be accessed on the site.

Vision and dental plans are also available for students and their eligible dependents.

Student Health **see website at www.hmc.psu.edu/studenthealth/
General health care is available to all students in the College of Medicine and their immediate dependents through the Student Health Service which is located at the Fishburn Road Office. Hours of operation are Monday through Friday, 8:00 – 4:30. The secretary is available 8:00 a.m. - 5:00 p.m. weekdays for scheduling questions. To make an appointment to see a physician, the student should identify him/herself as a medical or graduate student or student family member every time you call for an appointment or see a physician. In order to schedule an appointment in Student Health, call extension 5998. If you or a member of your family becomes ill on an evening or weekend, page the Family and Community Medicine on-call physician through the hospital operator at 531-8521. Dr. George Blackall has joined the Student Affairs Office as a counselor for students. Appointments can be made by calling 6148 or pager #0009.

All entering, full-time medical students are required to have a complete history and physical examination by a student health physician prior to matriculation. It is very important to have updated immunizations for infections you are likely to be exposed to as a health-care provider. All required immunizations and titers must be completed and submitted PRIOR to arriving on campus. Students who have not met these requirements will not be able to start classes.
• The College of Medicine recommends that graduate and medical students have hospitalization insurance at all times. Specific information concerning the school's affiliated insurance plans is distributed to all students at the beginning of each fall semester. If you do not participate in the school-affiliated program, you are required to show proof of equivalent insurance coverage on the waiver application form.

Additional information can be obtained in the Office of Student Affairs or the Office of Graduate Education. The above information is from the Student Affairs web site, Student Handbook section.

Copier Cards
The MD/PhD Program office has several copier cards that MD/PhD students can sign out to make copies in the Library. These cards are to be used strictly for copies needed for classes and not personal use. Cards must be returned to the office after the copies are made so that other students have access to them. Students are encouraged to use their graduate department’s copier during graduate years.

Travel Stipends
You are entitled to up to $300 per academic year (August 1 to July 31) toward travel expenses to attend scientific meetings or conferences from the MD/PhD Program budget during graduate years. To request this money, please email Barb Koch or one of the co-Directors as soon as you decide to go and include the name, date of the meeting, where it will be held and your role at the meeting. The co-Directors will approve/disapprove the request and notify you of that decision. Please notify the person in your graduate department office who does your travel that the MD/PhD Program will be paying $300 of your travel expenses and to contact Barb Koch for budget information.

Please save all expense receipts and give them to the person who is doing your travel to send with the reimbursement forms. Receipts are needed as backup (University Policy).

Upon returning from your trip, please write a brief paragraph describing your meeting/conference and email it to Barb Koch to be included in the next MD/PhD newsletter.

Disability Insurance
During all medical years, students are required to carry disability insurance on themselves. Students will need to pay this at the Bursar’s Office (Room C1607) and can bring the receipt to the MD/PhD Program Office. Barb Koch will then do a form to reimburse you for the cost. For 2010/2011, the cost is $43.20.

Vacation
During the medical years, student's follow the vacation schedule outlined on the Block class schedule for M1 and M2 and as built into the clerkship schedules for M3 and M4. Any vacation apart from that indicated in the M1/M2 schedule and prior to beginning thesis research in a laboratory needs to be approved in advance by the co-directors. Vacation or time away from the laboratory during the graduate years is at the discretion of the thesis advisor and needs to be discussed and approved in advance with the thesis advisor.
STUDENT FEES

Student Activity Fee
All students, both graduate and medical, are responsible to pay an annual $44.00 student activity fee. This fee is collected to help defray the costs of student sponsored graduation activities and Student Assembly events. $32.00 will be contributed to your Class fund and $12.00 will be contributed to the Student Assembly budget. During medical years, the MD/PhD Program will reimburse the students for this fee. During all years, it is the student’s responsibility to pay the fee in the Bursar’s Office or via eLion.

Information Technology Fee
Students must pay the Information Technology fee for each semester in the Bursar’s office or via eLion. The MD/PhD Program will not reimburse students for this fee. For the 2010/2011 year, the fee is $236/semester.

USMLE Exams
- Diane Gill in Student Affairs is the contact person. Students will receive information in the mail or email explaining registration and locations for taking the exam
- Step 1 fee for 2010 is $505
- Step 2 fee for Clinical Knowledge for 2010 is $505
- Step 2 fee for Clinical Skills for 2010 is $1075
- Step 3 will be taken after students graduate and leave Penn State. The Step 3 is taken sometime after starting the residency program. At this time, Step 3 must be taken within 7 years from taking Step 1. It is a good idea to check the USMLE rules of the state students do their residency in since some states have different time frames.
  - The fee for Step 3 can be found in the USMLE web site. The residency program office at your location will have information for you including the fee.

MD/PHD PROGRAMMATIC ACTIVITIES

MD/PhD Interview Days
- All students are required to participate in the interviews days whenever necessary and whenever their schedules permit
  - Barb and the Recruitment Team members will contact students to participate in interview events on both Sunday and Monday.
  - Barb will ask for volunteers at the beginning of the interview season for hosting applicants. Reimbursement will be made for any meals or related expenses when hosting an applicant.

MD/PhD Annual Retreat
- Mandatory attendance for all students
- Held annually off campus
- Includes overnight stay
- Agenda includes student speakers, a guest speaker, panel discussions, etc. and is arranged by students
- Organized by the student Retreat Team
- Advisors and Steering Committee members are invited and encouraged to attend
- No cost to students
Attendance is mandatory. Any student unable to attend must notify the co-Directors of their reason for not attending.

The 2011 annual Retreat will be held at The Penn Stater Conference Center on March 26 & 27, 2011.

**MD/PhD Student Seminar Series**
- Mandatory attendance for all MD/PhD students (sign-in sheet required)
- Advisors, MD/PhD Steering Committee members and training faculty are also invited
- Held the first Tuesday of the month from Noon to 1:00 (location varies; some are videoconferenced with main campus).
- Schedule
  - All students in G2 – M4 are required to give a seminar
  - One alumni speaker per year
  - 2 in-house physician scientists per year
  - Some will be discussions on various topics pertaining to the program

The MD/PhD Seminar Series was created to enable students to learn the research projects of each other and get to know each other better. Included in the schedule are at least a few discussion meetings on subjects suggested by students.

M3 and M4 students should contact Diane Thiboutot to notify your preceptor that you will be away from the clinic for the hour. Or, if you will be outside of the campus for a clerkship, let Diane know that you cannot attend. All other students must request permission from one of the co-Directors to be excused from a seminar.

Occasionally, other department seminar speakers that are physician scientists are able to meet with MD/PhD students. Barb will contact all MD/PhD students with those dates and times to meet with speakers. Even if you are not interested in the speaker’s research, it is good to meet them to ask questions about their experiences as a physician scientist. Attendance is voluntary but highly encouraged.

**STUDENT AWARDS AND RECOGNITION**

**Judith Bond MD/PhD Award**
This award is given to one or two MD/PhD students each year for outstanding achievement in clinical and research training. Recipients of the award are chosen by the MD/PhD Steering Committee. The awards are presented during The Convocation and Awards Ceremony, which is held in September or October. The award includes a certificate and a cash award.

There are many other awards that are given to graduate and medical students. These awards are listed in the Student Affairs/Student Handbook web site.
- **Medical Student Awards**
- **Graduate Student awards**
- **Selection to participate in Keystone Meeting**

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MD/PhD Bulletin Board

The bulletin board is located near the door to the Student Affairs Office, Room C1802. Student seminars, defenses, awards and any other news pertaining to MD/PhD is displayed.

STUDENT MENTORING, COUNSELING AND ADVISING

M1 and M2

The medical school advisor serves as preceptor for the clinical experiences and physical diagnosis teaching that begins during M1 and continues through M2. The medical advisors meet with their assigned students five times per year. The MD/PhD program directors are designated as co-advisors for the incoming students.

The co-Directors regularly meet with students during the M1 and M2 years. Meetings are held in the fall and spring semesters to review student’s academic performance, discuss choice of lab rotations, selection of a laboratory for thesis research, and the transition from medical school into graduate school. The co-Directors meet individually with each student shortly after completion of the summer rotations to discuss with them their choice of potential mentors. Our goal is to help to ensure that students have the opportunity to obtain the very best training possible.

The co-Directors have electronic access to the student grade folders and receive an email alert when test results are posted. The early warning system allows the co-Directors to help students deal with academic problems before they become more difficult academic deficiencies. The co-Directors and administrator meet with students to provide additional guidance as needed. Students who may need professional counseling have access to Dr. George Blackall, Psy. D., who provides counseling and referral services to medical and graduate students at the College of Medicine. Contact information for Dr. Blackall is found on page 3.

Career counseling begins when students arrive on campus and continues throughout their training. This occurs on an individual level between the student, the co-Directors and the student’s medical school advisor and continues with the thesis advisor, thesis committee and clinical advisors. The recent advent of CTSciNET provides an additional valuable resource for clinical and translational research networking and career development. Students are encouraged to utilize this resource which is located at http://pennstatehershey.org/sites/ctsi/

Graduate School Years

During their tenure as graduate students, the graduate thesis advisor and thesis committee serve as the primary source of student advising/mentoring. Each student is required to present a research seminar and meet with their thesis committee at least once per year during the graduate years, and a progress report (filled out by the student and their advisor) is filed with the Associate Dean for Graduate Studies (Dr. Verderame), as well as the MD/PhD program. We require that one member of the students thesis committee be a member of the MD/PhD Steering Committee. This representation ensures that the co-Directors have adequate feedback as to the progress of students towards completing their degree requirements in a timely and productive fashion, and also serves to alert the co-Directors to potential problems. During the graduate years, the co-Directors meet with each student once per year to review their progress and, as they approach completion of their research, help prepare them for the transition into the third year (M3) of medical school.
Dr. Thiboutot serves as the academic advisor for the medical school for the students in the program in M3 and M4 in terms of clerkship performance. Dr. Leslie Parent, Professor of Medicine and a member of the MD/PhD Steering Committee, serves as advisor for M3 and M4 students. Dr. Parent advises students on arranging their clinical rotation schedules. She also serves as residency advisor. In this capacity, Dr. Parent advises students on the process of applying for and seeking out residency programs, the different types of residency programs that are available, as well as providing information on fast-track programs that provide clinical/research opportunities for physician scientists. The co-Directors meet with students twice per year during M3. One meeting takes place in the fall to discuss the transition to M3, and a second meeting is scheduled for late spring to review the student’s plans for seeking out appropriate residency programs. During M4, the co-Directors meet with students at least once to review their progress in the residency match process.

**Residency Mentoring Program**

Leslie Parent, MD is the Coordinator of this program for MD/PhD students.

Plan for guiding MD/PhD students through the process of choosing a residency:

- Career Development seminar Spring Semester (First year)
  - Conducted by Dr. Dwight Davis and Office of Student Affairs
  - Introduction to AAMC “Careers in Medicine” website, a useful tool to help student through the process of choosing a suitable residency. Begins with self-assessment tools and gets more specific as they progress through medical school. Website can be accessed periodically to walk them through the process of career development.

- Luncheon series with Medical specialists (Second year and all laboratory years)
  - Scheduled throughout the year by the Office of Student Affairs to introduce students to clinicians in different specialties and subspecialties in an informal setting as an introduction to career paths of interest to them
  - Physicians from the Hershey Medical Center and from the community participate

- Exposure to invited MD/PhD or MD physician-scientists (All years)
  - Physician scientists who are traveling to PSU COM to give seminars in basic science and clinical departments will be invited to attend round table discussions with all MD/PhD students to discuss career paths, residency options and personal experiences of the visiting lecturers with the goal of exposing students to relevant role models throughout their education.
  - If the MD/PhD students would like to suggest physician scientists to invite for seminars, the office will keep a list.

- “MD/PhD Match Madness” informal get-together during the April seminar time with all students.
  - Graduating seniors will present a brief description of the process they used to learn about residency choices, discuss the residencies they ranked and the program in which they matched
  - Open Q&A with seniors and underclassmen

- Identify a career development mentor early in M3
Students must identify a residency mentor during the first year of their clinical rotations. Dr. Parent should be consulted for guidance.

Students must also identify a member of the MD/PhD Steering Committee to act as a separate mentor for career planning/counseling

Students should inform the MD/PhD office of their choice of mentors

The role of the mentors will be to advise the student about residency choices, help make contacts with programs, aid the student in finding the right information to make informed choices depending on their chosen career path which should include research

- Identify programs that are supportive of MD/PhD students, including those that integrate research and clinical exposures during residency
  - Send out survey to recent graduates to find out about the process they used to identify their current residency program and to learn whether they are happy with their choice (in development)
  - Compile list of web sites for research-oriented residencies (will be continuously updated)

Identify what the current students feel their needs are with respect to choosing a residency tailored for their specific interests and needs

**STUDENT ORGANIZATIONS AND ACTIVITIES**

**Student Organizations**

There are many student organizations available for MD/PhD students to join. Since students are both medical and graduate, they are eligible to join any organization. The PSSA is strictly for MD/PhD students (see below). As a graduate student, the GSA is a good choice. Information about student organizations can be found in the Student Affairs web site and also on the bulletin board outside the Student Affairs Office.

**PSSA (Physician/Scientist Student Association)**

The PSSA was organized by the MD/PhD students in 1995 to provide a forum for the discussion of issues relating to physician scientist training and career choices; to educate interested medical students as to the role of physician scientists in medical research and health care delivery; and to promote interest in research among the students and fellow medical students by sponsoring relevant activities and fundraisers throughout the year. Each year the students elect officers at the Retreat. For 2010/2011, officers are:

- President – Katie Huber
- Vice President – Cody Weston
- Secretary/Social Chair – Steven Steinway

**Student Teams**

Students are elected during the annual Retreat for various program activity teams. For 2009/2010, the following teams are responsible for each program activity:

- Recruiting/Interviews
  - Matt Moll
  - Katie Huber
  - Allison Cleary
  - Gene Cozza
  - Bill Su
• Retreat
  - Katie Huber
  - Melanie Dispenza
  - Shane Lloyd
  - Gene Cozza
• Seminar Series
  - Shane Lloyd
  - Emilie Muelly
• Steering Committee meeting representatives
  - James Bauer
  - Theresa Carr
• Newsletter
  - Emilie Muelly
  - Cody Weston

**MISCELLANEOUS INFORMATION**

**Income Taxes**
All MD/PhD students, regardless of citizenship, must file income taxes each year. No taxes are deducted from stipends when students are on a fellowship (medical years). Reporting the income, for tax purposes, is the responsibility of the student. This does not mean it is tax-free. During graduate years, students will be on an assistantship and only federal taxes will be deducted from stipends.

Please note that the MD/PhD Program office is not allowed to give any tax advice. Students who are US citizens should contact a local tax preparer with any questions. Foreign students can contact the International Student Office at University Park at (814) 865-6348 and speak to one of the representatives there.

**Outside Employment**
MD/PhD students are discouraged from outside employment. If an MD/PhD student is considering outside employment, prior approval from the co-Directors is necessary. If outside employment affects grades, research responsibilities or participation in program activities, the student will be asked to discontinue the employment immediately.

**Mailbox Keys**
During the week of orientation in August, new students will receive student mailbox keys. MD/PhD students will use this assigned mailbox for their first two years. When entering graduate school, students need to turn in their student mailbox key at the Post Office. During graduate years students will use the graduate department’s mail code. When students return to their third year of medical school (M3), they will again be assigned a different student mailbox number and can pick up the keys in the Post Office. Students will use this same mailbox for their final two years of medical school. Prior to graduation in May of M4, students must return the student mailbox key to the Post Office. There is a fee for lost mailbox keys.
<table>
<thead>
<tr>
<th>Name</th>
<th>Previous Institution</th>
<th>Degree &amp; Year</th>
<th>Advisor &amp; Graduate Program</th>
<th>Matriculated</th>
<th>Current Year</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albaugh, Vance</td>
<td>Coastal Carolina</td>
<td>BS/03</td>
<td>Christopher Lynch Physiology</td>
<td>2005</td>
<td>M4</td>
<td>2011</td>
</tr>
<tr>
<td>Kivovich, Violetta</td>
<td>SUNY, Binghamton</td>
<td>BS/02</td>
<td>Mark Kester Cell &amp; Mol Biology</td>
<td>2003</td>
<td>M4</td>
<td>2011</td>
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<tr>
<td>Lee, Joon (Andy)</td>
<td>U of PA</td>
<td>BA/03</td>
<td>Shao-Cong Sun Cell &amp; Mol Biology</td>
<td>2003</td>
<td>M4</td>
<td>2011</td>
</tr>
<tr>
<td>Lumsden, Kimberly</td>
<td>Norfolk State</td>
<td>BS/03</td>
<td>Diane Thiboutot IBIOS/Molec Med</td>
<td>2003</td>
<td>M4</td>
<td>2011</td>
</tr>
<tr>
<td>Todoric, Bozo</td>
<td>Elizabethtown</td>
<td>BS/03</td>
<td>James Connor Cell &amp; Mol Biology</td>
<td>2004</td>
<td>M4</td>
<td>2011</td>
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<tr>
<td>Plichta, Kristin</td>
<td>C of Wm &amp; Mary</td>
<td>BS/04</td>
<td>Edward Gunther Cell &amp; Mol Biology</td>
<td>2004</td>
<td>M3</td>
<td>2012</td>
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<tr>
<td>Erickson, Kathryn</td>
<td>USC</td>
<td>BA/BS/03</td>
<td>Philip Lazarus Cell &amp; Mol Biology</td>
<td>2004</td>
<td>G5</td>
<td>2013</td>
</tr>
<tr>
<td>Bauer, James</td>
<td>U of WI</td>
<td>BS/03</td>
<td>Christopher Siedlecki Bioengineering</td>
<td>2005</td>
<td>G4</td>
<td>2013</td>
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<td>Dispenza, Melanie</td>
<td>U of VA</td>
<td>BA/BS/05</td>
<td>Diane Thiboutot Physiology</td>
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<td>G4</td>
<td>2013</td>
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<td>Lapp, Daniel</td>
<td>Eastern Mennonite</td>
<td>BS/02</td>
<td>Colin Barnstable Neuroscience</td>
<td>2005</td>
<td>G4</td>
<td>2013</td>
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<tr>
<td>Pinzon-Guzman, Carolina</td>
<td>Texas A&amp;M</td>
<td>BS/03</td>
<td>Colin Barnstable Neuroscience</td>
<td>2005</td>
<td>G4</td>
<td>2013</td>
</tr>
<tr>
<td>Carr, Theresa</td>
<td>Vanderbilt</td>
<td>BA/02</td>
<td>Lisa Shantz Physiology</td>
<td>2006</td>
<td>G3</td>
<td>2014</td>
</tr>
<tr>
<td>Name</td>
<td>Previous Institution</td>
<td>Degree &amp; Year</td>
<td>Advisor &amp; Graduate Program</td>
<td>Matriculated</td>
<td>Current Year</td>
<td>Graduates</td>
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<tr>
<td>Huber, Kathryn</td>
<td>Saint Olaf</td>
<td>BA/04</td>
<td>Jin-Ming Yang Pharmacology</td>
<td>2005</td>
<td>G3</td>
<td>2014</td>
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<td>Rolin, Olivier</td>
<td>Brown</td>
<td>BA/03</td>
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Note: Please see the MD/PhD website/Student Directory for more information on each student
ACADEMIC DEANS

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Senior Vice President for Health Affairs
Dean, Penn State College of Medicine
Executive Director, Penn State Hershey Medical Center
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Carol Whitfield, PhD

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Dwight Davis, MD


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Chief Information Officer
Thomas W. Abendroth, MD

Director, Penn State Cancer Center
Thomas Loughran, MD

Director, Penn State Heart & Vascular Institute
Lawrence Sinoway, MD

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Anesthesia (x6597 - Room C2840)
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Biochemistry & Molecular Biology (x8586 - Room C5757)
Judith S. Bond, PhD

Cellular and Molecular Physiology (x8566 - Room C4600)
Leonard S. Jefferson, Jr., PhD

Comparative Medicine (x8460 - Room CG721)
Ronald Wilson, VMD, MS

Dermatology (x8307 – Room UPC II 4300)
James Marks, MD

Emergency Medicine (x8955 – Room H1239)
Thomas Terndrup, MD

Family and Community Medicine (x8187 - Room C1626)
James M. Herman, MD, MSPH

Public Health Sciences (x7178 - ASB, Suite 2200)
Vernon Chinchilli, PhD

Humanities (x8779 - Room C1743)
Daniel Shapiro, MD

Medicine (x8390 - Room C6860)
Robert C. Aber, MD
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Microbiology and Immunology (x8253 - Room C6800)
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Neural & Behavioral Science (x8652 - Room C3801)
Colin Barnstable, PhD

Neurology (x1803 – Room C5522)
David Good, MD

Neurosurgery (x8807 – Room C3830)
Robert Harbaugh, MD

Obstetrics and Gynecology (x8629 - Room C3614)
John Repke, MD

Ophthalmology (x8783 - UPC, Suite 800)
David A. Quillen, MD

Orthopaedics (x4803 - Room C3862)
Kevin Black, MD

Pathology (x8246 - Room C7628)
Dani Zander, MD

Pediatrics (x6700 - C7840)
A. Craig Hillemeier, MD

Pharmacology (x8286 - Room C7708)
Kent E. Vrana, PhD

Psychiatry (x8515 - Room C5604)
James Hegarty, MD, MPH

Radiology (x8044 - H6300D)
Kathleen Eggli, MD

Surgery (x8939 - Room C4612)
Peter Dillon, MD
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Academic Progress Committee, Years III and IV
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Biological Safety & Recombinant DNA Subcommittee
Ralph Keil, PhD

Clinical Trials Committee
Gordon Kauffman, MD

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CUMED Years I & II
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Lawrence Kass, MD

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Lee Groff

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Brad Williard

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Human Use of Radioisotopes Subcommittee
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Robert Bonneau, PhD

Institutional Safety Committee
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The Doctors Kienle Center for Humanistic Medicine
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Cynthia Robinson

Medical Student Selection Committee  
Dwight Davis, MD

Property/Equipment/Utilities Safety Subcommittee  
James Rohacek

Radiation Safety Committee  
Edward S. Podczaski, MD

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Biochemistry & Molecular Biology  
Cara-Lynne Schengrund, PhD  
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Bioengineering  
Herbert Lipowsky, PhD (University Park)  
(814) 865-1407

Cell & Molecular Biology  
Henry Donahue, PhD  
Room C3804F, x4809

Genetics  
Ralph Keil, PhD  
(1st year student advisor)  
Room C5715, x8595

Immunology & Infectious Disease  
Neil Christensen, PhD  
Room C7800A, x6185

Microbiology & Immunology  
Jianming Hu, PhD  
Room C6708, x6523

Molecular Medicine  
Charles Lang, PhD  
Room C4765, x5538
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Molecular Toxicology
Jong Yun, PhD
Room HCAR 3017, x1508

Neuroscience
Patricia Sue Grigson, PhD
Room C1716, x5772

Pharmacology
Jong Yun, PhD
HCAR Bldg Room 3017, x1508

Physiology
Leonard Jefferson, PhD
Room C4706, x8567

Integrative Biosciences Options
(available to MD/PhD students)

IBIOS/Bioinformatics & Genomics
Keith Cheng, MD, PhD
Room C7866, x5635

IBIOS/Chemical Biology
Thomas Spratt, PhD
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Kathy Shuey, Room C1712, x8982

Molecular Toxicology
Kathy Shuey, Room C1712, x8982

Neuroscience
Lori Coover, Room C1712, x1045

Pharmacology
Elaine Neidigh, Room HCAR Bldg 3005, x8285

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Lisa Harman, Room C4600, x8566

Integrative Biosciences
Biomolecular Science & Engineering and Chemical Biology
Kathy Shuey, Room C51712, x8982