*University of Michigan Medical School*

# *Graduate Program in Molecular & Cellular Pathology*

## Student and Faculty Handbook

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https://www.pathology.med.umich.edu/phd-program

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# General Information

## About the Graduate Program

Students are admitted to the Graduate Program in Molecular and Cellular Pathology through the Program in Biomedical Sciences (PIBS). The graduate degree attained by students in the Molecular & Cellular Pathology Graduate Program is the Doctor of Philosophy Degree in Pathology through the Horace H. Rackham School of Graduate Studies. The Graduate Program in Pathology at the University of Michigan trains individuals for careers as independent scientific investigators, with a focus on the study of the molecular and cellular mechanisms of disease processes or abnormal biology. This area of study encompasses the basic science mission of the Department of Pathology to advance current knowledge on the etiology and pathogenesis of human disease.

The primary goal of the Pathology Graduate Program is to train investigators for an academic career. However, the program is based broadly enough to allow graduates to pursue careers in industry and government, in addition to academic teaching and research. Student's training in disease models and processes has made them invaluable in assessing drug efficacy and toxicity; hence, a significant number of these individuals take positions in pharmaceutical companies. Governmental research and regulatory agencies also benefit from this expertise, partly for the same reasons as the drug companies, and partly for their basic (i.e. non-applied) research skills.

## Sequence of Program

The course programs are formulated to meet the needs and specialized interests of individual students. A few required didactic courses provide students with a background in basic areas of biochemistry, cell biology, immunology, and genetics in preparation for in-depth study of the cellular and molecular pathogenesis of disease. Beyond that, students are free to tailor their coursework and research to their specific areas of interest.

During the pre-candidacy period, students gain research experience and identify their areas of interest through participating in research rotations. They may select from a wide array of specialized courses offered at the Medical School and throughout the University. By the end of the pre-candidacy period the student will have selected a thesis advisor, passed preliminary exams, and will be prepared to start his or her own thesis research. Typically, the student obtains a Ph.D. in Pathology in four or five years.

## Graduate Program Faculty

The research interests of the faculty are diverse and include investigative programs in tissue injury and repair, inflammation, aging, tumor biology, apoptosis, regulation of gene expression in disease processes, the biology and pathobiology of cytokines, adhesion molecules, extracellular matrix, drug discovery and development. Many of the nearly 42 Pathology graduate program faculty also

hold joint appointments with other biomedical science departments at the University of Michigan, offering students an interdisciplinary approach to their training.

Many of the Pathology graduate program faculty maintain websites devoted to ongoing research in their laboratories. Interested students can obtain additional information about the faculty and their research at *https://www.pathology.med.umich.edu/phd-program/alumni-mentors.*

## Graduate Program Committees and Organization

**Graduate Program Advisory Committee:**
The Molecular and Cellular Pathology Graduate Program is administered by the Graduate Program Advisory Committee. The faculty chair of the program committee is appointed by the Chairman of the Department of Pathology. The faculty chair appoints additional faculty members. Functions: set policies, rules and regulations regarding the program; oversee operation of the program; appoint chairs to other graduate program committees; finalize decisions regarding applications and admissions.

Current Committee:
Zaneta Nikolovska-Coleska, Ph.D. - Chair
Charles Parkos, M.D., Ph.D. – Department Chair
Kathleen Cho, M.D. – Vice Chair of Academic Affairs
Asma Nusrat, M.D. – Director of Experimental Pathology
Steve Kunkel, Ph.D. - Faculty Representative
Thomas Wilson, M.D., Ph.D. - Faculty Representative
Andrew Muntean, Ph.D. – Admissions Chair

**Preliminary Examination Committee:**
The program committee chair appoints a faculty chair to the Preliminary Examination Committee. The exam committee chair appoints faculty who serve as members. Function: Organize and administer the preliminary examinations required of all graduate students to achieve candidacy.

Current Committee:
David Ferguson, M.D., Ph.D. – Chair
Greg Dressler, Ph.D. – Faculty Representative
Nicholas Lukacs, Ph.D. - Faculty Representative
Zaneta Nikolovska-Coleska, Ph.D. – Faculty Representative
Jolanta Grembecka, Ph.D. - Faculty Representative
Andrew Muntean, Ph.D. - Faculty Representative
Tomasz Cierpicki, Ph.D. - Faculty Representative

**Pathology Graduate Program Curriculum Revision Committee:**
The program committee chair also serves as chair to the Pathology Graduate Program Curriculum Revision Committee. The chair of the curriculum revision committee appoints additional faculty members to serve on the committee. Function: Review and revise pathology courses in the graduate program curriculum.

Current Committee: Zaneta Nikolovska-Coleska, Ph.D. – Chair
David Lombard, M.D. – Faculty Representative
Gregory Dressler, Ph.D. – Faculty Representative
Nicholas Lukacs, Ph.D. – Faculty Representative
Thomas Wilson, M.D., Ph.D. – Faculty Representative
David Ferguson, M.D., Ph.D. – Faculty Representative

**PIBS Academic Advisors (PIBS Curriculum Committee):**
The chair of the program committee serves also as the primary PIBS Academic Advisor. The chair will also appoint one additional faculty member to serve as backup. Function: Advise students on required PIBS and Pathology coursework and minimum requirements, rotations, and selecting labs and mentors; review student's course selections and sign off on PIBS election form; answer any questions that student's may have about coursework and research rotations.

Current Committee: Zaneta Nikolovska-Coleska, Ph.D. – Primary
Nicholas Lukacs, Ph.D. - Backup

**PIBS Operating Committee:**
The chair of the program committee appoints one faculty member to represent the Pathology Graduate Program on the PIBS Operating Committee. It is comprised of representatives for the 14 participating programs and makes the overall policy decisions. Function: Decision-making board for PIBS.

Pathology Representative: Zaneta Nikolovska-Coleska, Ph.D.

**PIBS Admissions Committee**
The chair of the program appoints the chair of the admissions committee and together they select two additional members of the PIBS admissions committee. Function: Review and make decisions on applicants and admissions.

Current Committee: Andrew Muntean, Ph.D. – Chair
Jeff Rual, Ph.D. - Faculty Representative
Simon Hogan, Ph.D. - Faculty Representative
Zaneta Nikolovska-Coleska, Ph.D. - Faculty Representative

# Academic Policies and Procedures

## Academic Advisors

During pre-candidacy the academic advisor for the Pathology Graduate Program is Professor Zaneta Nikolovska-Coleska, Ph.D. (Faculty back-up advisor: Nicholas Lukacs, Ph.D.) After the student has achieved candidacy, the student's mentor will serve as advisor, in conjunction with the Pathology Graduate Office. Any questions or problems regarding course requirements can be directed to Dr. Nikolovska-Coleska, Dr. Lukacs or Laura Labut.

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| Zaneta Nikolovska-Coleska, Ph.D. | zanetan@med.umich.edu | (734) 615-9202 |
| Laura Labut | laszczem@med.umich.edu | (734) 763-0846 |

## Credit Hours

All students who have not achieved candidacy must enroll for a minimum of 9 credit hours in each of the fall and winter terms.

Candidates must enroll for 8 credit hours of Pathology 995 ("Candidate Dissertation Research") each of the fall and winter terms. A student who defends in the spring and/or summer half-term must register for 8 credit hours of 995 for the spring/summer full term.

A candidate who registers for a course must seek prior approval from the faculty advisor and also register for 995. A candidate may elect either one course per term, or more than one course for a total of no more than four credits, without paying additional tuition. A candidate who does not elect a course during a term of 995 enrollment may, in the next term, either register for courses for no more than 8 credits or register for no more than two courses that total more than 8 credits without paying additional tuition. An additional course may not be taken in anticipation of taking none in a future term of 995 enrollment. A candidate who takes courses beyond this limit will be assessed tuition.

When a candidate registers for a course during the fall, winter, or spring and summer half-terms but does not register for 995, the Registrar's Office will add the 995 to the term and assess any required tuition.

*See "Candidacy Course Registration", Section 2.2.5, Rackham Graduate School Academic Policies for more information.* https://rackham.umich.edu/policy/section2/#2-1

Pre-doctoral students must accumulate a minimum of 18 credits of graded graduate coursework in residence to be recommended for candidacy. This includes courses graded on a satisfactory basis. Courses that are audited do not meet the requirement, nor do doctoral courses such as PATH 990 or 995. *See "Ph.D. Candidacy Requirements", Section 4.3.1, point 3 of the Rackham Graduate School Academic Policies for more information.* https://rackham.umich.edu/policy/section4/

In accordance with Rackham Graduate School requirements, all candidates must be enrolled during the term in which they intend to defend their Ph.D. thesis.

## Grading and Grade Point Average

Coursework is graded with a letter system (A, B, C, D, or E) except for special courses noted below. An instructor may add "+" or "-" to grades. Letter grades for programs on the Ann Arbor campus are converted into numbers, or points. Letter grade values can be found at

A grade of "S" indicates satisfactory performance and is counted toward the credit requirements of the graduate program. A grade of "S" is considered to be a grade of "B" or better. A grade of "U" is assigned when performance is not acceptable and is not counted toward a student's required credit hours. Grades of "S" and "U" are not factored into the GPA.

## Academic Standing

To maintain satisfactory academic standing, graduate students must make satisfactory progress towards their degrees and maintain a minimum Rackham cumulative grade point average of "B" (3.0).

All didactic coursework for the Molecular and Cellular Pathology graduate program requirements must be passed with a minimum grade of "B" (3.0).

## Student Performance Evaluation

During the pre-candidacy period the progress of the student will be evaluated by reviewing their grades, individual research rotation evaluations and preliminary exam results. During the candidacy period performance will be evaluated based on the yearly dissertation committee meeting. The evaluation period will be the academic year (September through August).

## Cognate Requirement

Before advancing to candidacy, students must complete 4 credit hours of cognate coursework with a grade of B or better. Cognate courses are those that are in a discipline or area different from a student's field of study but are related or connected with some aspect of this field. All cognate coursework must be approved by the department or program. Cognate requirements may be satisfied in three ways:

1. By completing 4 credit hours of cognate coursework in approved graduate-level courses with a grade of B or better.
2. By using coursework within the same department or program but in a subfield different from the student's own. A course in a student's program that is cross-listed as a course in another program may satisfy the cognate requirement.
3. By completing graduate coursework at another institution that meets the expectation of the cognate requirement, without transferring the credit to the transcript. The student must

provide Rackham OARD with an official transcript including the courses, credit hours, and the department or program should notify Rackham OARD. These courses do not apply toward the minimum 18 credit hour requirement for the degree and do not appear on the University transcript.

## To achieve candidacy a student must:

- Complete 18 credit hours of graded coursework not including PATH 990
- Complete 4 credit hours of cognate coursework with a grade of B or better
- Earn a minimum grade point average of 3.0
- Completed PATH 581 and 582 with a minimum grade of B. If the student joined MCP after the 1st year and didn't complete PATH 581 course, he/she will need to take this course after taking the candidacy exam in order to be eligible for the first meeting with their dissertation committee (within six months of achieving candidacy)
- Register for 2 terms of PATH 850
- Complete two of the following PIBS core courses (or approved alternatives): Biological Chemistry 550, Human Genetics 541, CDB 530 or Cancer Biology 554
- Select and complete one course that covers fundamental statistical concepts from several recommended courses: BIOSTAT 501; BIOSTAT 503; BIOSTAT 521; BIOINF 525 or another course based on the student's interest and thesis project. Alternate courses must be pre-approved by the program director.
- Successfully complete the preliminary exam

## Exceptions for MSTP students:

- Because MSTP students are considered to be at the same academic level as students entering the program after one year in PIBS, MSTP students are not required to take the PIBS core courses and PATH 581.
- MSTP students should plan to take their preliminary exams at the end of their first term as a pre-candidate. Any postponement of the preliminary examination will require approval by the Graduate Program Committee.

## After a student achieves candidacy they must:

- Register for 8 credits of PATH 995 every fall and winter term until the oral defense.
- Form dissertation committee (by end of winter term, April 30th of the student's second year) and submit the required Rackham form to Laura Labut for processing.
- Hold regular meetings with committee (at least once a year) and submit a thesis advisory committee meeting form to Laura Labut after each meeting. The student's first meeting with the dissertation committee should occur by July 31st of their second year.
- Register for PATH 862 Translational Pathology which will be offered every second year.
- Attend and participate in the PATH 850 seminar. Registration is not required. Degree candidates participate in the seminar series by presenting one seminar per academic year on their thesis research projects.

- Complete and maintain the Individual Development Plan.
- Give one oral presentation at the Annual Pathology Research Symposium before graduation. If a student is not selected to give an oral presentation, they must present a poster at the Symposium each year.
- Make timely progress towards degree and give careful consideration to career goals (postdoctoral fellowships, jobs, etc.).
- Have at least one first-author paper accepted for publication prior to their thesis defense. Students should also have a second first-author paper in preparation by the time of their defense.
- Meet the Rackham requirements for the dissertation, defense and graduation.

# Deficiencies in Academic Progress and Resulting Actions

The Molecular & Cellular Pathology (MCP) program is expecting students to demonstrate satisfactory academic standing and progress throughout their graduate studies. The MCP criteria for satisfactory academic standing are defined below and are consistent with the Rackham Graduate School.

Students should meet with their mentors regularly, prepare annual reports and meet once per year with the graduate chair to discuss their academic performance and progress toward the degree. The MCP program will immediately notify students and Rackham in writing when performance falls below an acceptable level. MCP, in compliance with the Rackham Graduate School, may take any of the following actions when a student's academic performance or progress toward the degree is deficient:

- Enter a notation of unsatisfactory academic standing on the academic record;
- Place a student on probation upon recommendation of the program;
- Require a student to withdraw from the University; or
- Not confer a degree or certificate.

**Unsatisfactory Academic Standing**

To maintain satisfactory academic standing, all didactic coursework for the Molecular and Cellular Pathology graduate program must be passed with a minimum grade of "B" (3.0).

A student with unsatisfactory academic standing will not be advanced to candidacy, will not be awarded a degree or graduate certificate, and may change programs and transfer credits only with permission of the admitting program. Upon the recommendation of the graduate chair, and with the consent of the Graduate School, a student will be given an opportunity to correct the academic deficiency and return to satisfactory academic standing.

Students may also be dismissed for failing to meet the standards of academic and professional integrity (Rackham Academic and Professional Integrity Policy). https://rackham.umich.edu/policy/section8/

**Academic Probation and Dismissal**

In accordance with its published policy, the MCP program may place on academic probation a student who has academic and professional difficulties, as defined by the program, that prevent progress towards the degree. Academic probation is normally required before a program may recommend to the Graduate School that a doctoral student be dismissed for academic reasons. As an exception, and only with advanced notice to the students, program policy may allow dismissal without probation for a student who fails to pass candidacy or preliminary exams. Academic probation will be noted on the student's unofficial transcript.

*Placing a student on academic probation*. The advisor or graduate chair may recommend that a student be placed on academic probation. The decision to place a student on probation must be made by a committee consisting of: the department chair (or the chair's designee), the graduate chair and the advisor.

*Length of the probationary period.* The probationary period may be no shorter than two months of the fall or winter term and ordinarily conclude at the end of that term. For a student placed on academic probation within two months of the end of the fall term, the probationary period will extend into the winter term for a total of at least two months. For a student placed on academic probation within two months of the end of the winter term, the probationary period may include the spring or summer half-terms or the following fall term, for a total of at least two months. A student may be placed on academic probation starting in the spring or summer half term for a minimum of two months, and does not need to be enrolled during these half terms.

*Notifications.* The graduate chair will notify the student and Rackham OARD in writing before the probationary period begins, explaining the reasons and conditions of probation: the start and end dates of the probationary period; funding support (see below); conditions, if any, for removal from probation; and options for appeal (see below). A student who has been placed on probation may request a leave of absence from Rackham or withdraw. The leave or withdrawal will stop the clock on the probationary period, which resumes when the student returns to active status or is reinstated. Probation will remain in effect until the conditions are remedied or the student is dismissed.

*Funding a student on probation*. The level of funding prior to academic probation should be continued through the probationary period.

*End of the probationary period and dismissal.* At the end of academic probation, and upon the recommendation of the graduate chair and the consent of the Graduate School, a student may either be removed from probation or dismissed from the program. The decision to dismiss a student will be made by a committee including, the department chair (or the chair's designee), the graduate chair, and the advisor. The graduate chair must notify Rackham OARD of a recommendation for dismissal.

*Option to appeal academic probation or dismissal.* Students will be notified of options to appeal academic probation or dismissal. The MCP program committee constituted of a minimum of three faculty will review and consider appeals. Students may use the Graduate School's Academic Dispute Resolution process only for procedural issues of fair and equal treatment under the policy of the MCP program, and not to appeal the academic reasons for the decision.

Students who fail to meet standards of academic or professional integrity or who have been found responsible for violations of other University standards of conduct may be dismissed in accordance with separate procedures described in the Rackham Academic and Professional Integrity Policy.

# Proposed Curriculum for PIBS Students in MCP Program

The Molecular and Cellular Pathology Graduate Program has a diverse research faculty who investigate a broad range of disease topics. Therefore, we strive to be flexible with our required coursework in order to tailor the curriculum to complement each student's chosen field of research. This is accomplished by allowing students to choose electives with the help of departmental academic advisors to fulfill both MCP program and Rackham Graduate School requirements.

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| Rackham required credits: | a minimum of 18 credit hours for candidacy including 4 credit hours of Cognate course work |
| Preliminary exams: | written and oral |

The basic required coursework consists of:

At least two of the following PIBS core courses* (approved by grad program Chair) taken in the fall or winter of the first year:

- 3 credits of Biochemistry (Biological Chemistry 550)
- 3 credits of Genetics (Human Genetics 541)
- 3 credits of Cell and Developmental Biology (CDB 530)
- 3 credits of Cancer Biology (Cancer Bio 554)

**These courses will satisfy the Cognate Requirement. These courses are not necessary for MSTP students.*

In addition to two of the above PIBS core courses, the Molecular and Cellular Pathology Program also requires additional courses:

**1. Pathology 581 Tissue, Cellular and Molecular Basics of Disease (Winter, 3 credits)**
This course introduces students to basic pathophysiologic mechanisms, the molecular basis for disease and the morphologic expression of human disease. The course will begin with a review of normal histology and then focus on a rigorous presentation of cellular and molecular mechanisms which appear to be common to a number of diseases including cell response and injury, inflammation and immunity, infectious disease, disturbances of the circulation and neoplasia. Specific prototypical disease entities are then presented within the context of these mechanisms and the molecular events that govern their induction and maintenance. *(This course is not necessary for MSTP students.)*

**2. Pathology 582 Current Topics in Molecular Pathology (Fall, 2 credits)**
This is a team taught course consisting of several modules, each concerned with a different topic in Pathology. Faculty members will lecture on new developments within a field and assign recent papers. The students will present a critical analysis of the papers during an open discussion session.

Topics include inflammation, DNA repair, fibrosis, cancer, aging, chemical biology and more. The course is designed to develop the oral presentation and critical thinking skills required for research.

**3. Path 850 Research Colloquium in Experimental Pathology (Fall and Winter, 1 credit)**
The Research Colloquium is a required course for the department's graduate students during their pre-candidacy period. The Research Colloquium is offered both semesters and pre-candidates are required to register for two semesters. During this period the pre-candidate must provide a critique of four of the scheduled seminars per semester. The purpose of this requirement is to encourage students to think critically about what makes an effective research presentation, i.e. how to give a good talk.

Candidates participate in the seminar series by presenting one seminar per academic year on their thesis research projects. In addition, attendance and participation is mandatory for all candidates although they are not required to enroll in the course.

Besides students, this series features speakers from within the department, lecturers from other academic units within the Medical School and the University, and invited outside speakers.

Members of the Pathology research community will be notified via email of current and future seminars. Individuals may be added to or deleted from the email list, and may request paper copies of seminar notifications for posting in their area, by contacting Laura Labut, laszczem@med.umich.edu

A complete schedule of seminars can be found on the Pathology website:
*https://www.pathology.med.umich.edu/phd-program/path-research-seminars*

**4. Path 862 Translational Pathology (Fall, 1 credit)**
Translational Pathology is a graduate-level course designed to the meet the growing need for scientists and medical professionals who can bridge the gap between basic science and clinical practice. This multi-disciplinary course provides both graduate students and clinical residents/fellows with training in the methods and principles involved in translating basic science findings into clinically useful interventions to improve human disease outcomes. The central objective is to illustrate how basic science applied to human disease can lead to the discovery of its pathophysiology, which in turn can be used to develop therapeutics and diagnostic tests. The course is taught from the unique perspective of the pathologist, wherein faculty experienced with successful translational research offer insight spanning: the nature and manifestation of human disease, the basic mechanisms of disease pathogenesis, chemical pathology and drug discovery/development, laboratory diagnostics, clinical trials, personalized medicine, and finally the newest technologies used in these arenas. The target mixture of research and clinical trainees provides a further enrichment of the educational experience. This course will be offered once every two years. Students must have achieved candidacy in a biomedical science field prior to enrollment.

# Focused Elective Coursework in Pathology

**1. Cancer Biology 554 The Science of Cancer (Winter, 4 credits)**
This course is an intensive, action participation - based course covering the molecular and cellular biology of cancer (e.g. the 10 hallmarks of cancer). Teaching approaches include faculty lectures, student presentations on key concepts, and student analyses of important research papers. Grades are based on student participation and student's ability to independently compose two Nature 'News and Views' type articles on assigned research papers.

**2. Pathology 551 Proteome Informatics (Fall, 3 credits)**
This is a lecture course on proteomics and its biomedical applications. Proteomics – the study of the totality of the protein complement of an individual organism – is a very timely topic, both in basic science and in biomedical research and applications. This course begins with a thorough study of proteomics technology based on mass spectrometry (MS) technology, but will also touch upon alternative approaches. Informatics based methods of study are extremely important in this area and will be discussed in detail. Topics include: introduction to proteomics and mass spectrometry, peptide and protein identification, statistical methods and computational algorithms, post-translational modifications, genome annotation and alternative splicing, quantitative proteomics and differential protein expression analysis, protein-protein interaction networks and protein complexes, data mining and analysis of large-scale data sets, proteomics in cancer research, clinical applications, related technologies such as metabolomics and protein arrays, data integration and systems biology.

**3. Pharmacology 502 Introduction to Scientific Communication (Fall, 2 credits)**
This course introduces second-year graduate students to essential scientific communication skills. Students will write a grant over the course of the term on a chosen topic. Class meetings alternate between presentations by local experts and students. In-depth analysis of student writing/presentation skills provided in class by instructor, small groups, and guest scientists. By term's end students will have a high quality product to be presented in oral and written form. Finally, students will participate in a mock study section to constructively evaluate the grants.

**4. Biological Chemistry 650 Eukaryotic Gene Expression (Fall, 2 credits)**
The course will focus on recent discoveries concerning the regulation of eukaryotic gene transcription, including transcription complex architectures, chromatin organization and modifications, mechanisms of epigenetic inheritance and genome-wide functions of transcription regulatory factors.

**5. Biological Chemistry 690 Biochemical Regulatory Mechanisms (Fall, 2 credits)**
This course will cover recent developments in biochemistry and molecular biology with relevance to human disease. Short faculty lectures will be combined with in-depth discussion of research papers. Planned topics include signaling pathways and oncogenes, biochemical mechanisms of inherited retinal degeneration and neural regeneration, modeling of biochemical mechanisms with human stem cells, and regulation of gene expression by microRNAs and chromatin modifications, among others.

**6. Biological Chemistry 713 Emerging Areas of Biochemistry (Fall, 1 credit)**
Cutting-edge topics in biochemistry will be explored though seminars and discussions with leaders in their fields. These activities will be supplemented by selected readings. Course-topics will be selected from unsettled, and perhaps, controversial areas of biochemistry, e.g., neurochemistry, the origin of life, metabolic engineering, etc.

# Embedded degree in Bioinformatics

Some Molecular & Cellular Pathology students have components of their thesis projects that rely heavily on bioinformatics. Those students who are interested in pursuing a Master's Degree in Bioinformatics are able to earn the degree while enrolled in the Molecular & Cellular Pathology PhD program. It is strongly recommended that they consult with either one of the Master's Guidance Advisors or one of the Graduate Program Directors well in advance of finishing classes and their thesis defense to determine the best course of action, and to officially apply to the program. The yearly deadline for applications is August 1st. Ideally, students should apply towards the end of their first year.

Dual degree students are required to have a bioinformatics-related chapter in their final dissertation. They are also required to have at least one DCMB faculty (primary or joint) on their dissertation committee, who will approve of the bioinformatics-related portion of the dissertation. Dual degree PhD/MS students will have their MS degree conferred in their final term, at the same time as their PhD studies.

For more information on the embedded Master's degree in Bioinformatics please contact their program administrator at (734)764-7330 or visit their webpage at https://medicine.umich.edu/dept/dcmb/education/degrees/masters-program.

# Pathology Guidelines for Preliminary Examination

Students should plan to take the preliminary examination at the end of the fall term of the second year of study. Any postponement of the preliminary examination will require approval by the Graduate Program Committee. The preliminary examination will consist of writing and defending an original research proposal. The purpose of the proposal is to demonstrate that the student has the ability to generate ideas for original research and to defend the methods and importance of the research.

## Topics

The student should choose a topic that is distinct from his/her dissertation research. However, the topic need not exclude the general field of the student's research but should use primary sources outside his/her specific dissertation topic. The research topic will ideally be complementary to the student's thesis research, i.e., not directly related, but relevant enough that increased knowledge in the area will add value to their thesis research. The topic should not include any on-going projects currently taking place in their research mentor's lab, nor any projects that were written in

a proposal by that lab. In addition, the topic cannot be a previous rotation, laboratory technician, or undergraduate project of the student.

To ensure sufficient originality and promote feasibility of the proposed studies, topics must be approved by the Graduate Examination Committee. To ensure the topic is distinct from the student's thesis work, the mentor must sign a form attesting that the topic fulfills the requirements.

# Topic Approval

The one-page Abstract/Specific Aims should first be written and approved by the Graduate Examination Committee before proceeding with the full proposal. The Committee must ensure that the topic is sufficiently distinct from the student's own research area to fulfill the criteria. If unacceptable, the committee will require the student to submit a new topic.

The one-page abstract/specific aims should include the following sections:

**Title**
The title should create a good first impression, to be informative of the proposed research topic, and to engage an interest.

**1st Paragraph**
- Introduce the project.
- Summarize the important knowledge.
- Identify the problem created by the gap in the knowledge and state the critical need.

**2nd Paragraph**
- State the overall project goal and ensure that addresses an identified gap in knowledge
- Present your central hypothesis (Be sure that you present a true hypothesis – one that can be objectively tested to determine its validity – rather than a predetermined conclusion)

**3rd Paragraph**
- Outline specific aims presented in a logical order
    - Ensure that specific aims correlate with the central hypothesis and support the overall project goal
    - Define a clear purpose, working hypothesis or statement of need, and expected outcome for each specific aim.
    - Make sure no specific aim is dependent on the successful outcome of another aim.

**4th Paragraph**
- Identify the project’s innovation, e.g., a unique approach or technology.
- Delineate the project’s expected outcomes: validation of the central hypothesis and resolving the gap in knowledge.
- Summarize the project’s significance

In addition to this one-page abstract/specific aims, student should provide a paragraph with a description of their current research and how the selected topic complements and differs from their thesis work and the work currently taking place in their mentor's lab.

An abstract should be submitted to the Graduate Examination Committee and should be approved before proceeding with the full proposal. The Chair of the Graduate Examination Committee will communicate and resolve with the student any concerns or differences of opinion about the topic, or to advise a student in focusing or choosing topic if needed. Note that typical reasons for rejecting

a topic would include insufficient content involved in addressing the question, lack of feasibility, or lack of sufficient distinction from the student's dissertation research.

## Written Proposal

Following approval, the student should provide to all of the committee members the written proposal. The format should follow NIH R21 guidelines. The proposal should be 6 pages of text, including figures but excluding references, in Arial 11-point font, single spaced with margins of 0.5" to 1" on all sides. Here are the approximate page guidelines:

- Abstract/Specific Aims (1 page; already approved by the Graduate Examination Committee)
- Research Strategy (6 pages limit) organized in the following specified order:
    - Background and Significance (1-2 pages)
        - Explain the importance of the problem that the proposed project addresses
        - Explain how the proposed project will improve scientific knowledge, technical capability and/or clinical practice
    - Innovation (1/2 page):
        - Describe novel theoretical concepts, approaches or methodologies to be developed or used and their advantages over existing
    - Approach (3-4 pages):
        - Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project
        - Discuss potential problems, alternative strategies and benchmarks for success anticipated to achieve the aims
- Bibliography (no limit)

No preliminary data should be included in the application, but often diagrammatic figures can clarify the proposed research.

When preparing to write the proposal the student is encouraged to seek advice from a variety of sources, including the internet, library, and especially peers, post-doctoral fellows, and faculty members, including the advisor. The latter should be utilized to proof read the application and make suggestions to improve the proposal and their role should be non-directive. They should not take an active part in constructing the actual experimental design of the application. The student alone is responsible for independently choosing a scientific problem, designing a logical and convincing proposal. The work should represent the student's own creative thinking. When the application is complete the student will provide a copy of the proposal at least ten days prior to the oral examination. The written proposal will serve as a means to judge both the written aspect of the preliminary exam, as well as serve as the basis for the oral examination of the student. The students are permitted to speak to the individual committee members after handing out the preliminary proposal prior to the oral examination to address concerns and seek input.

## Mechanics of the Oral Examination

During the oral examination, the student is expected to demonstrate a thorough understanding of the literature and methods relevant to the proposal. The oral examination will test the ability of the

student to develop ideas and concepts pertinent to their area of study and to analytically respond to specific scientific questions. The examination will test the ability of the student to respond to questions concerning the hypothesis and the experimental design testing the hypothesis. While some of the questions may not have clear-cut answers, the Committee will evaluate the student's ability to reason effectively and draw appropriately on a broad range of knowledge to do so. The student should be familiar with historic experiments that resulted in the proposed hypothesis and basic scientific concepts related to the proposed research. For example, if the student has written an application on signal transduction, a fundamental knowledge on methods to assess signaling and the various biological signaling pathways should be well understood, even if the student proposes to study only a particular signaling pathway. The student should be familiar with the methodologies needed to execute the studies, including the theory, limitations, and appropriateness of the techniques.

At the beginning of the examination the committee members will confer in the absence of the student to briefly discuss the student's academic record and any potential problems that may need to be clarified. The student will start the exam by providing an overview, of not more than 20 minutes, on the written research topic. The student should briefly cover the hypothesis, the specific aims, and significance and then provide a more in depth discussion of the experimental approach of how the scientific problem will be approached, what are some potential expected results, and what are potential pitfalls. The committee members are free to question the student during the presentation to clarify a point. After the student presentation, the committee members will take turns asking questions relating to the written and/or oral presentation. This examination will likely take 2 hours. Upon completion of questioning, the committee will deliberate in the absence of the student and evaluate the student's performance.

The committee can decide to pass, pass with conditions (conditional pass), or fail the student. In the event of a conditional pass, the student will not advance to candidacy until the conditions stipulated by the Preliminary Exam Committee have been fully met to the satisfaction of said committee within a specified time frame. If the student fails the preliminary examination, the student shall be provided the opportunity of retaking the examination. The deadline for retaking the preliminary examination will be April 30th, the end of the second year of study. If the student fails the preliminary examination a second time, the student will not be permitted to continue in the Molecular and Cellular Pathology Graduate Program.

Upon the conclusion of the preliminary examination, the chair of the committee will write a summary of the student’s performance, which will be signed by all of the committee members. This form must be returned to the student services representative and placed in the student's file.

## Preliminary Exam Deadlines*

*A. Topic Selection and abstract-* ***Due in the first half of November***
- Abstracts and topic will be reviewed by the preliminary committee. The abstract may be approved without revisions, approved pending revisions, or a new topic can be requested by the committee.

*B. Written Proposal-* ***Due in the first week of December***

*C. Oral Exams -* ***Scheduled during mid-December***

*D. Conditional Pass Requirements – must be met by first week of January (specific due date can be found on the Rackham website at https://rackham.umich.edu/navigating-your-degree/candidacy-deadlines/)*

*MCP specific due dates for preliminary exam requirements will be defined each academic year.

## Dissertation Committee

Upon achieving candidacy, students must form a dissertation committee. Formation of the committee must be completed by April 30th.

Guidelines for Dissertation Committee Service are available on the Rackham website under https://rackham.umich.edu/faculty-and-staff/dissertation-committees/guidelines-for-dissertation-committee-service/.

The student's dissertation committee must have at least four members, three of whom are regular members of the graduate faculty, with two of whom are from the student's home program. In addition, each committee much have a sole Chair or two Co-Chairs, and a Cognate member who is familiar with the standards for doctoral research and who holds at least a 0.50 appointment in a Rackham doctoral program other than the student's home program. The dissertation committee Chair (or each Co-Chair) will guide and encourage the student's design and execution of an original, high quality, doctoral-level research project. The end result of this effort is expected to be a dissertation which makes a substantive contribution to the student's discipline, which is usually exemplified by journal publication. The Cognate's role is to broaden the scholarly representation of the dissertation committee beyond the student's home program and also serves to provide a non-specialist's perspective on the quality of the dissertation.

Once the members of the committee have been determined the student must e-mail their names to Laura Labut, the Graduate Program Coordinator. Laura will initiate an electronic form to establish the committee with Rackham. The online system will send automated e-mails to the student, mentor and program chair soliciting their approval of the committee. Once all parties have approved the committee it will be posted to the student's academic transcript.

The student's first meeting with the dissertation committee should occur by the end of July of their second year. Students should prepare a written proposal to be distributed to their committee members before the meeting. The written proposal should follow the NIH formatting guidelines for F31 fellowships and be 2 – 6 pages in length.

After the first meeting, the student should hold yearly meetings to discuss progress towards the degree. A Thesis Advisory Committee Meeting form (available in the appendix of this handbook) should be submitted to the graduate office following each committee meeting for the student's academic file.

## Responsibilities of the MCP Graduate Student

Ph.D. students are responsible for fulfilling all of the academic requirements of the Molecular & Cellular Pathology Ph.D. program. Students are also responsible for:

- Completing and maintaining the Individual Development Plan.
- Ensuring that the Preliminary Exam is completed in a timely manner.
- Choosing a thesis mentor and dissertation committee in a timely manner and in accordance with program and Rackham policies. Should a student need to change thesis mentors, it is the responsibility of the student to identify a new thesis mentor.
- Scheduling yearly dissertation committee meetings and submitting a Thesis Advisory Committee Meeting form following each meeting.
- Making timely progress towards degree and giving careful consideration to career goals (postdoctoral fellowships, jobs, etc.).
- Publishing at least one first-author paper prior to their thesis defense. Students should also have a second first-author paper in preparation by the time of their defense.
- Meeting the Rackham requirements for the dissertation, defense and graduation.

*Graduate Student resources-

1. How to get the Mentoring you want: A Guide for Graduate Students at the University of Michigan
*http://www.rackham.umich.edu/downloads/publications/mentoring.pdf*

2. Rackham Graduate School Academic Policies -
*http://www.rackham.umich.edu/policies/academic_policies/*

## Responsibilities of the MCP Faculty

- Provide guidance and monitoring of the student's progress through the MCP Program in their laboratory. This includes regular meetings and review of the student's technical and scientific development, along with adherence to the dissertation project.
- Serve on committees as asked by the MCP program, such as preliminary exam committee, admissions committee, and/or graduate advisory committee.
- Ensure timely scheduling of preliminary exams, dissertation committee meetings, and dissertation defenses as well as provide written annual evaluations.
- Actively participate in weekly seminar series, participate in PIBS recruitment, and willingness to engage in graduate teaching activities.
- Should the mentor, for any reason, leave the University or resign as a student's mentor, it is their responsibility to identify what remains to be accomplished in the thesis project and the estimated time frame to completion. Identify the lab for the student to reside to finish experiments and/or write up the final thesis.

*Mentoring resources -

1. Howard Hughes Medical Institute and Burroughs Wellcome Fund - *A Practical Guide to Developing Programs in Scientific Management*
*http://www.hhmi.org/resources/labmanagement/downloads/guide.pdf*

2. University of Michigan Press - *How to Mentor Graduate Students: A Guide for Faculty*
*http://www.rackham.umich.edu/downloads/publications/Fmentoring.pdf*

3. National Academy Press - *Adviser, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering*
*http://www.nap.edu/readingroom/books/mentor/#committee*

## Department Events

The Pathology Research Symposium is held each fall. The event is organized by the Pathology Graduate Students. The event is intended to showcase the breadth of research being conducted within the department by our faculty, postdoctoral fellows and students. The graduate students identify individuals to present their scientific research as well as select and invite an internationally-recognized keynote speaker.

# Financial Support

## Stipends

All Molecular and Cellular Pathology graduate students will be supported throughout the course of their studies. This support includes a stipend ($31,632 for the 2018-19 academic year), tuition and health care benefits. Students are supported financially in their first year by PIBS and by the Department of Pathology for the first half of their second year. Upon achieving candidacy, students are financially supported by their thesis mentor.

Stipends are considered taxable income. Students will receive their stipend through one of two different funding mechanisms. The amount of the stipend is the same for all students no matter which mechanism is being used for their payments. Most students will be funded by each of these mechanisms at different times during the course of their Ph.D. studies. The two funding mechanisms are 1) fellowship funding and 2) funding as Graduate Student Research Assistants (GSRAs).

**GSRA Funding:** Students who are not on fellowships are paid as Graduate Student Research Assistants (GSRAs). Students are generally paid through this mechanism at times when their source of funding is their mentor. GSRAs are considered "employees" of the University (without parking privileges). GSRAs will have taxes deducted from their paychecks, and they will receive a W-2 form. Social Security and Medicare will not be deducted during semesters in which students are enrolled; Social Security and Medicare will be deducted during terms of non-enrollment.

**Fellowship Funding**: Many students entering PIBS are paid from fellowships. Students on training grants and other types of scholarships such as the Rackham Merit Fellowships and NSF awards are also paid from fellowships. Students paid from fellowships do not have deductions taken out of their paychecks for federal taxes, state taxes, social security (FICA) or Medicare. Students are, however, required to report their stipends as income on their income tax returns, although they do not receive a W-2 form. Many students will need to pay quarterly income taxes. A presentation concerning this will be made by a university representative in the fall for incoming students during PIBS 800, but for specific advice on a particular situation, students would need to be advised from a private source due to U of M regulations.

Students are strongly encouraged to apply for individual fellowships. The following web pages are an excellent resource for funding opportunities:

Fellowships:
*https://rackham.umich.edu/funding/*

External Funding:
*https://research.umich.edu/research-resources/funding-and-research-development*

**Gradcare and Dental Insurance**: All graduate students, regardless of their funding source, are entitled to Gradcare health insurance. Students will receive an e-mail to their University account instructing them to log into Wolverine Access to make their benefit elections. **Students are responsible for submitting their benefit elections via Wolverine Access within 30 days of the day the e-mail is sent.** Currently, GSRAs default to GradCare and Dental Option I, single person coverage if no elections are made within the 30-day period.

# Scientific Meeting and Travel Assistance

### Rackham Administered Travel Grants

The Rackham Conference Travel Grant is intended to provide opportunities for Rackham graduate students to participate in meetings and conferences related to their academic professions. Graduate students are eligible to apply for a Rackham Conference Travel Grant award if:

- The graduate student is in good academic standing in a Rackham degree granting program
- The student has responded to a formal call for abstracts
- The student has been accepted to present a poster or paper at a conference

A student is eligible for one travel grant award (either domestic or international, but not both) during a fiscal year from July 1 – June 30.

To be considered for funding, a student must submit:

- A complete application via Rackham's website including comments by his or her faculty advisor or graduate chair as to how the conference participation is directly relevant to the student's research or graduate studies.
- A copy of the confirmation of presentation or letter of invitation (an e-mail is also acceptable) with the applicant's name clearly listed to verify the student's acceptance to participate in the conference.
- A budget regarding the amount of funding requested and a list of the specific expenses covered by the award.

The application is located at:

https://rackham.umich.edu/funding/funding-types/rackham-conference-travel-grant/

Application Deadline: Applications are accepted at any time prior to the conference and will be considered on an individual basis according to each student's circumstances. Applications WILL NOT be considered for retroactive funding.

The student will receive an e-mail notifying him or her of Rackham's decision.

NOTE: Please be aware that this award is considered taxable income. International students will have taxes withheld prior to receiving funds, so the actual award amount will be less than the amount indicated above. For students who qualify for need based financial aid, a Rackham conference Travel Grant may reduce the original amount of your loan. Please make a copy of your

application before submitting it to Rackham, and one of the award letter, then contact the office of Financial Aid for help to ensure that the award does not affect your loans.

**Molecular & Cellular Pathology Administered Travel Grants**

The Molecular and Cellular Pathology Program Advisory Committee will consider any request from our graduate students for travel funds to attend scientific meetings.

Student should first apply for a Rackham Conference Travel Grant.

Students should then send an official request to the Program Committee (via Laura Labut) with specific information regarding the meeting (including dates, location, etc.), the title of his or her presentation (attach the abstract), other sources of funding, and how much he or she would need (itemized, e.g. plane fare, lodging, registration, etc.). This funding is supported by the Rackham Block Grant awarded to our program each academic year to assist us in providing direct student support for research related travel, recruitment activities, and summer support.

Please contact Dr. Nikolovska-Coleska or Laura Labut should you have any questions regarding this supplemental funding.

# Employment

Molecular and Cellular Pathology Ph.D. students are forbidden from engaging in outside employment. Ph.D. training and research is a full time endeavor. Outside employment subtracts from the time and mental energy a student can devote to his or her research. Furthermore, it is an NIH policy that students who are supported by a PHS training grant may not be employed outside their training program. Any additional appointments or positions within the University of Michigan must be discussed with and approved by the student's mentor and the Director of the graduate program whether voluntarily or paid.

# Student Vacation Policy

Following the University's holiday schedule and NIH regulations, students will receive 2 weeks of vacation per year in addition to the designated holiday closures of the medical school. To arrange vacation time, all students must receive permission from their advisor. Students need to contact the Program Coordinator, Laura Labut, if they will be on vacation for longer than 14 days. Approval is automatic as long as the mentor has given permission. The judgment and flexibility of the mentor can be exercised. Circumstances such as family death, illness, or other crisis events will be considered on a case-by-case basis.

# Professional Conduct and Development

## Academic and Professional Integrity

It is the responsibility of each student to be informed about the rules of conduct and policies for academic and professional integrity. The Rackham Graduate School Statement on Graduate Academic and Professional Integrity is available online for your reference. The statement addresses issues such as:

- Cheating or Obtaining an Improper Advantage
- Plagiarism
- Research Misconduct
- Dishonesty in Publication
- Abuse of Confidentiality
- Misuse of Computer Facilities
- Misuse of Hazardous Substances in Research-Related Activities
- Fabrication, Falsification, or Unauthorized Modification of an Academic Record
- Obstruction of the Academic Activities and Research of Another
- Illegal or Unauthorized Use of University Resources
- Other Forms of Academic Misconduct and Attempted Academic Misconduct
- Professional Misconduct

*https://rackham.umich.edu/policy/section8/*

## Authorship, Intellectual Property and Plagiarism

**Resources**

The University of Michigan Medical School Guidelines for the Responsible Conduct of Research website addresses the following issues:

- Responsibilities of a Mentor
- Data Collection and Management
- Rights and Responsibilities of Peer Review
- Guidelines for Authorship

*http://www.med.umich.edu/medschool/research/*

The University of Michigan Research web site details University, State and federal policies and responsibilities for research being carried out at the University. A full index of policies, including Intellectual Property, Conflict of Interest, Human Subjects, Radiation Safety and OSEH can be found at *http://www.research.umich.edu/.*

Plagiarism is a serious breach of academic integrity. It is every graduate student's responsibility to understand what plagiarism is and exert extreme care to avoid plagiarism in their work.

## Career Exploration, Planning and Placement

The Office of Graduate & Postdoctoral Studies offers services and resources to aid in the career exploration and job search of Ph.D. students. Located on the medical campus at 1135 Catherine Street, room 2960 Taubman Health Sciences Library and on the web: *https://ogps.med.umich.edu/resources/cpd/*

## Grievance Resolution and Procedures

These steps must be followed in the order in which they are presented. Every effort should be made to resolve the issue within the Pathology Department.

1. The student should attempt to resolve the grievance with the individual directly followed by consultation with their mentor.

2. If the problem continues and/or the mentor is the source of the grievance then the next step would be to contact the student representative (Laura Labut) who will help guide the student. This will likely result in a meeting with the Graduate Program Director.

3. The MCP Graduate Program Chair will attempt to reach a solution to the grievance working with the student and mentor as well as other parties involved. If no solution can be reached, the Chair will contact the Graduate Program Advisory Committee for further guidance.

4. The Advisory Committee can determine the course of action for remediating the grievance and resolve the situation to the satisfaction of the parties involved.

5. If the Grievance is not resolved the Department Chair's office would be the final step prior to moving the issue outside of the Department.

6. If no resolution can be reached within the department the grievance should be taken to the Office of Graduate and Postdoctoral Studies where further consultation will be made prior to involving the Rackham Graduate School.

*****Further steps can be identified from the University of Michigan Rackham Graduate School Policy located online at: *https://rackham.umich.edu/rackham-life/conflict-resolution-and-student-grievances/.*

# Department Organization and Procedures

### Pathology Department Chair

Charles Parkos, M.D., Ph.D., Professor — cparkos@umich.edu
Assistant – Angela Suliman — asuliman@umich.edu
Phone: 763-6384
Bldg. 35 NCRC / Campus Zip 2800

### Pathology Graduate Program Chair

Zaneta Nikolovska-Coleska, Ph.D., Assoc. Professor — zanetan@umich.edu
Assistant – Tammi Toth — tammitot@umich.edu
Phone: 615-9202
Bldg. 520, Rm. 1368 / Campus Zip 2800

### Student Service Administration

Laura Labut, Program Administrator — laszczem@umich.edu
Admissions, Curriculum, GSRA Appts, Gradcare
Phone: 763-0846
Bldg. 30 NCRC, Room 1571 / Campus Zip 2800

## Communications within the Department

### E-mail Group

There is an e-mail group set up in MCommunity. The group is **pathology_graduate_students@umich.edu**. Members include current Pathology Graduate Students and 1st-year PIBS students who have identified Pathology as their program of primary interest. The owner is the MCP Program Administrator. Graduate students may use this group for program related communications.

### News and Events Notices

Faculty and students who have important news or events that they would like to share with the department may forward notices to Laura Labut for electronic distribution. Important news and events may also be posted on the Pathology web pages; for submission, please contact Laura Labut (laszczem@umich.edu). The Pathology web pages are a great resource for sharing accomplishments with the Pathology community, so please let us know of accomplishments, awards, and honors.

### Department Web Page

*http://www.pathology.med.umich.edu/*

The Pathology Department home page includes links to the graduate program, faculty and student pages, telephone and paging directories, calendars of events, Michigan Medicine pages, maps, conference rooms, etc.

# Facilities

### Office and Building Keys

To request office or building keys, contact Regina Ferguson at rcferg@umich.edu or 763-4913. You will be required to provide a copy of your lab safety training certificate from OSEH.

### Room Scheduling

For assistance with reservations, contact Laura Labut, 763-0846 or laszczem@umich.edu.

## Academic Resources of Interest to the Department

The **Taubman Health Sciences Library** is one of the largest medical libraries in the country. It serves Michigan Medicine as well as the Medical School, School of Nursing, and the College of Pharmacy.

The Taubman Health Sciences Library is at 1135 E. Catherine St., Ann Arbor, Michigan 48109-2038. To find the library, Directions and Maps are available online at *https://www.lib.umich.edu/taubman-health-sciences-library*.

Contact Circulation at (734) 764-1210 and Reference at (734) 763-3071.

# Faculty Profiles

Visit https://www.pathology.med.umich.edu/phd-program/alumni-mentors to view profiles of the MCP faculty.

# Appendices

GRADUATE PROGRAM IN MOLECULAR &
CELLULAR PATHOLOGY

STUDENT: _____

I have reviewed the proposed preliminary exam topic for _____ and confirm that there are no on-going projects currently taking place in my lab, nor any proposed projects, that match the student's candidacy exam proposal.

COMMENTS:

SIGNED:

_____
Student's mentor

## THESIS ADVISORY COMMITTEE MEETING REPORTING FORM

Student: _____

Mentor: _____

Date of this meeting: _____

Date of last meeting: _____

Committee member: _____ Present at this meeting? Yes No

Committee member: _____ Present at this meeting? Yes No

Committee member: _____ Present at this meeting? Yes No

Committee member: _____ Present at this meeting? Yes No

Committee member: _____ Present at this meeting? Yes No

### 1. RESEARCH PROGRESS

Provide a short description of the progress toward the student's specific aims.

Comment on the feasibility of current and proposed experiments and quality of the results.

Comment on the student’s background knowledge, critical thinking and oral presentation skills.

Comment on the student's progress toward publication (published and planned publications):

## 2. TRAINING PROGRESS

Were there suggestions for additional course work for the student? If yes, what are the suggested courses?

Were there any questions about the student's independence, quantity and quality of effort?

What are the student's career goals and action plan?

What input did the mentor and/or committee members give the student to facilitate their progress and professional development?

## 3. SUMMARY

Did the committee feel the student's progress in all of the above areas was sufficient? If not specify the areas that the student needs to improve.

| | |
|---|---|
| **Mentor Signature** | **Date**[1] |
| **Student Signature** | **Date** |

[1] Form revised August 2015

MEDICAL SCHOOL
DEPARTMENT OF PATHOLOGY
UNIVERSITY OF MICHIGAN

# Molecular & Cellular Pathology Annual Progress Report (2018–2019)

Student's name _____

First term in MCP _____ I entered through ☐ PIBS ☐ MSTP

Year in program ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th ☐ 6th

Research rotation #1 _____

Research rotation #2 _____

Research rotation #3 _____

Research rotation #4 _____

PhD thesis mentor _____

Thesis committee members:

_____

_____

_____

_____

_____

Are you pursuing a dual degree? ☐ Yes What is the other program/ degree? _____

☐ No

Are you enrolled in a certificate program? ☐ Yes What certificate program? _____

☐ No

## Goals

What are your short-term goals for the upcoming year?

What is your long-term goal? Where do you see yourself in 10 years? Describe a timeline for achieving this goal.

What can your mentor and the MCP program do to help you accomplish these goals?

Research

Dissertation research focus _____

Dissertation title (in progress)_____

Briefly describe the aims and experimental approaches of your project

Describe your major research accomplishments during the past year?

Are there any particular problems that you have encountered in your research?

What do you see as the key things for you to focus on for the next year?

Are you satisfied with your research progress? If not, discuss any obstacles you have experienced and possible solutions.

Are you satisfied with the frequency of your meetings with your mentor and presenting ongoing research on group meetings? If not, discuss your needs.

Do you feel that you are "on track" towards completion of your PhD? If not, please explain why.

My last dissertation committee meeting was on _____.

## Activities/Awards/Honors

Check any activities you have performed or honors/awards you have received this past academic year (since your last annual report). Include details such as dates, locations, award names, publication details or classes/subjects taught.

### Research activities

□ Award/honor

□ Citation/publication (insert citation information)

□ National/International workshop and meetings (specify oral and/or poster presentation)

□ Fellowship/training applications submitted and the outcome (if known)

### Training activities

□ Passed prelims/achieved candidacy

□ Course work _____

□ Collaboration with other lab _____

□ Communication skills development _____

□ Gave an oral presentation at the annual Pathology Symposium

□ Participated in informal teaching _____

□ Participated in a journal club _____

□ Research techniques acquisition _____

□ Certificate Program _____

### Services

□ Helped with PIBS recruitment

□ Mentored a student

□ Outreach activities _____

□ Performed service for my department/program _____

□ Performed service for the University _____

□ Reviewed a manuscript _____

□ Served as a GSI _____

□ Tutored a student _____

□ Membership in Professional Societies _____

□ Other _____