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# Master of Science Program

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Handbook  
2019-2020

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Curriculum  
Faculty Information  
Degree Checklist

This publication contains the most current information available on the subjects covered as of the date of publication. This publication should **not** be considered a contractual or binding agreement. The department reserves the right to modify or eliminate the policies described herein, and apply any such modifications to any student without regard to date of admission, application, or enrollment.

# Master of Science Curriculum

## I. INTRODUCTION

The Master of Science program is designed to provide students with the educational background, oral and written presentation skills, and research experience to prepare them for future careers in the health sciences or science-related fields in the broad topic areas of microbiology and immunology. Study for the Master of Science in Medical Microbiology and Immunology emphasizes a combination of course work and laboratory experience to familiarize you with microbiology and immunology and to educate you in the scientific method. It can be a time when you identify a primary interest in microbiology and immunology, or a time when you first become introduced to the fields of microbiology and immunology. During the Masters of Science degree program you will work under the close supervision of a Major Advisor on your research or clinical thesis project. As a M.S. student you will learn scientific methods and techniques, learn how to interpret data, and learn how to design experiments to answer scientific questions. On average, the M.S. degree in Medical Microbiology and Immunology requires two full years to complete, including summer sessions.

## II. PROGRAM OBJECTIVES

Within the context of Creighton as a Jesuit, Catholic University, the Graduate School provides value-centered education for students to develop mastery of their chosen field of study. The Medical Microbiology and Immunology programs offer an environment ideal for fostering critical judgment, scholarly initiative, and disciplined inquiry. At the completion of the Master of Science program in Medical Microbiology and Immunology, students will:

1. Demonstrate fundamental knowledge in the fields of Medical Microbiology and Immunology.
2. Demonstrate independent critical and analytical thinking, both within their field of study, and beyond for the use of their knowledge for service to others.
3. Identify and suggest possible solutions to ethical dilemmas that occur in their work and field of study, and understand the importance of professional ethics in all aspects of scientific communication and laboratory work.
4. Demonstrate competence in the laboratory, including application of the scientific method and appropriate use of laboratory tools and techniques.
5. Demonstrate written and oral skills necessary for communication of research, knowledge, and ideas to scientists and non-scientists alike.

## III. FINANCIAL AID

### A. Stipends

Students enrolled in the Master of Science program receive full remission of tuition and fees. Student health insurance is also provided. However, no stipend for living expenses is provided so you must be able to support yourself during the course of the program. It is also essential that you be able to devote full time and energy to your class work and research project, and you will be required to enroll as a full-time student (8 credit hours minimum) each semester and summer session (6 credit hours). Exceptions can be made with the consent of your Major Advisor, the

Graduate Program Director, and the Department Chair. **In addition, you are expected to continue your research endeavors over the summer break and other breaks which are standard for undergraduate students.** It is during these times, when classes are not in session, that you can make significant progress on your research project. Although graduate students do not have extensive teaching responsibilities, there are some limited exam proctoring and laboratory assistant duties that all graduate students are expected to perform. Any vacations or personal days should be coordinated through your Major Advisor to ensure that you do not miss mandatory graduate student meetings, exam proctoring duties, seminars, etc.

#### **IV. TERMINAL OBJECTIVES AND CURRICULUM**

Upon the completion of the master's program, the student should be able to:

- A.** Demonstrate a fundamental knowledge in fields of medical microbiology and immunology.
- B.** Demonstrate ability in independent critical and analytical thinking, both within and beyond the scope of his/her research, as evidenced by:
  - a) Independent execution of thesis research project
    - i) Literature review
    - ii) Experimental design
    - iii) Proper inclusion of controls
    - iv) Critical analysis of data and troubleshooting
  - b) Critical analysis of published scientific literature
    - i) Experimental design
    - ii) Proper use of controls
    - iii) Interpretation of data
- C.** Develop competence in the laboratory, including application of the scientific method and appropriate use of basic and state of the art laboratory tools and techniques.
- D.** Develop the oral communication skills necessary for active participation in scientific gatherings, both as a presenter and a discriminating member of the audience.
  - a) Presentation of published scientific data
  - b) Presentation of own scientific data
  - c) Presentation of concise 10-minute research presentations for regional and national meetings
  - d) Active participation as an audience member in seminars and journal club
- E.** Demonstrate skill in written scientific communication.
  - a) Manuscript preparation
  - b) Abstract/poster preparation for scientific meetings
- F.** Comprehend the importance of professional ethics in all aspects of scientific communication and laboratory work.
- G.** Acquire the scientific independence required to assume the next professional position.

H. Develop the necessary skills required to effectively educate and train others in the classroom and laboratory.

The following curriculum is required of all students entering the Master of Science program in Medical Microbiology and Immunology within the Creighton University School of Medicine.

<b>CORE CURRICULUM</b>	<b>CREDIT HOURS</b>
Foundations of Microbiology (MIC 721)	4 credit hours
Research Methods (IDC 627)	3 credit hours
Host Defense (MIC 740) <sup>a</sup>	3 credit hours
Responsible Conduct of Research (IDC 601)	1 credit hour
Introduction to Biostatistics for the Biomedical Sciences (IDC 625)	3 credit hours
<b>Total Core Credit Hours</b>	<b>14 credit hours</b>
<b>ELECTIVE COURSES</b>	<b>1 course minimum (no credit hour minimum)</b>
Advanced Microbial Pathogenesis (MIC 733)	
Diagnostic Microbiology (MIC 735)	
Bacterial Physiology (MIC 739)	
Cellular and Molecular Immunology (MIC745)	
Molecular Virology (MIC 749)	
Antimicrobial Agents and Chemotherapy (MIC 753)	
Clinical Infectious Diseases (MIC 754)	
Current Topics in Medical Microbiology/Immunology (MIC 790)	
Directed Independent Readings (MIC 793)	
Courses from other departments may be considered if the graduate committee feels they would be beneficial to research development	
<b>Departmental Seminar (MIC 791)</b>	<b>Each Semester (1 credit hour)</b>
<b>Directed Independent Research (MIC 797)</b>	<b>6 credit hours minimum</b>
<b>Master's Thesis (MIC 799)</b>	<b>6 credit hours minimum</b>
<b>TOTAL CREDIT HOURS</b>	<b>30 credit hours</b>

<sup>a</sup> Taught in conjunction with students in the Physician Assistant program. Graduate students have separate syllabus and course requirements.

## **V. ACADEMIC REQUIREMENTS**

- A.** A minimum grade of "B" is required to earn graduate credits in "500-series" (advanced undergraduate) courses. In courses numbered 600 and above (open exclusively to graduate students) the minimum acceptable grade is "C". Accumulation of any grade below "C" terminates the student's graduate status.
- B.** If you accumulate more than 6 credit hours of "C's" or any grade less than a "C", regardless of the credit hours involved, you will be automatically dismissed from the program.
- C.** All appeals for removal of probation, academic suspension, transfer of credits or change in program are heard by the Executive Board of the Graduate School. Petitions are filed in writing to the Dean as described in the Graduate Catalog.

## **VI. SELECTION OF MAJOR ADVISOR**

- A.** Prior to the selection of a permanent Major Advisor, the Graduate Program Director will serve as your *ad hoc* advisor.
- B.** Upon entering the program you will begin laboratory rotations within the first two weeks of your first semester. Students should identify up to four laboratories with research programs of interest and spend a 3-4 week rotation within each laboratory. If you enter the program having already identified a laboratory and major advisor, laboratory rotations during the first semester are still encouraged. At the end of the first semester, you should select your Major Advisor and area of research interest. Major Advisors who hold Secondary or Contributed Services positions within the Department must be approved by the Department Chair.
- C.** Your Major Advisor will serve as the Chair of your Graduate Committee and will direct your research program and advise you on the appropriate selection of courses. Your Major Advisor will carry the responsibility of providing the necessary funding for your research project(s).
- D.** A change in your Major Advisor is strongly discouraged. However, under unusual circumstances you may petition to the Graduate Program Director, and must receive the approval of the Department Chair.

## **VII. THE ADVISORY COMMITTEE AND COMMITTEE MEETINGS**

- A.** You are responsible for selecting your Advisory Committee through consultation with your Major Advisor.
- B.** The Advisory Committee will consist of the Major Advisor and a minimum of three other faculty members (at least 4 members total). At least 1 of the committee members must hold primary appointment in a department other than Medical Microbiology and Immunology.

- C. The first meeting of the Advisory Committee will be scheduled during the second semester of the first year of the program. During this meeting you will outline your remaining coursework and will present to your Advisory Committee your proposed research project. **You are required to submit the completed and signed Graduate Student Initial Plan of Study to the Department Office for placement in the student's file.**
- D. You are expected to have developed and discussed your Individual Development Plan (IDP; see Section XIII) with your Major Advisor and will present the goals of your IDP at your first Advisory Committee Meeting. You should review the IDP annually and present an update on your IDP to your Advisory Committee at least once more before your defense.
- E. Committee meetings are required to be held every six months. If a committee meeting is not held the student will not be able to register for class (spring, summer and fall semesters).
- F. Your committee meetings will be evaluated by the Advisory Committee, with emphasis on oral skills, presentation of data, progress in research project, ability to answer questions, ability to critically evaluate your data and suggest future studies, etc.
- G. **You are required to submit copies of all Graduate Student Committee Evaluation Forms after each Advisory Committee Meeting to the Department Office for placement in the student's file.**
- H. **You are required to submit a copy of the Annual Graduate Student Activity Profile after each spring meeting to the Department Office for placement in the student's file**

#### VIII. WRITTEN COMPREHENSIVE EXAM

- A. If a student receives a grade of "C" in Foundations of Microbiology (MIC 721) or Host Defense (MIC 740), the student will be required to take a written comprehensive exam on the material covered in the course(s) in which the student received a "C" grade.
- B. Testing will normally occur during the month of **June** after the second semester in the program has been completed.
- C. Questions will be submitted from faculty who teach in the core curriculum courses. Questions will be submitted to the curriculum committee, who will read the questions and edit them for clarity with guidance from the faculty member who wrote the question, and then formally approve the questions for the exam.
- D. Students must pass all the questions to pass the written comprehensive exam. In the case of a failed question, the answer will be reviewed by another faculty

member with expertise in the content area. A final decision regarding the failed grade will be made by the curriculum committee.

- E. If the student is dismissed from the program as a result of failing the written exam, and the student chooses to dispute this decision, the student must notify the Graduate Program Director and the Graduate School in writing within 10 business days of the formal receipt of the decision. The appeals process would follow the Graduate School Dismissal Appeals Policy.

## **IX. THESIS RESEARCH AND DEFENSE:**

- A. Once you have completed your thesis, a final copy should be provided to each member of the Advisory Committee and the Dean of the Graduate School.
- B. To ensure that Committee Members are given adequate time to read and critique the thesis, the oral defense cannot be scheduled any sooner than 30 days after committee members have been provided with the thesis, unless otherwise approved by the committee.
- C. You will give an oral presentation of your thesis research.
- D. The defense of your thesis will follow the presentation and will include questions to evaluate:
  - (1) The thesis itself (i.e., quality and completeness of the research, validity of the methods used, validity of conclusions, etc.).
  - (2) Your capacity for independent thought,
  - (3) Your in-depth knowledge in the specific areas of microbiology and immunology related to the dissertation topic
  - (4) Your knowledge of all areas fundamental to medical microbiology and immunology.
- E. Successful defense must satisfy the majority of the Advisory Committee. However, you may not be granted the degree without the full support of your Major Advisor. The decision of the Advisory Committee is final.

## **X. POLICY ON ACADEMIC HONESTY**

All Creighton University graduate students are subject to the standards of academic integrity required by the University, and to the established penalties for academic misconduct in course work. In addition, students must also observe additional standards announced in writing by faculty members for particular courses.

Student academic misconduct includes, but is not limited to:

- a. Cheating: The deliberate use or attempted use of unauthorized material in an academic exercise, including unauthorized collaboration with classmates.
- b. Plagiarism: The deliberate representation of the words, ideas or work of others as one's own in an academic exercise; the appropriation of the language, ideas or thoughts of another and representation of them as one's own original work.
- c. Falsification: Falsifying documents, correspondence, reports, or records of any kind, or knowingly providing false information or evidence to University or School personnel, or to others external to the University.



- d. Fabrication: The deliberate generation or augmentation of data, information, citation or result in an academic exercise.
- e. Improprieties of Authorship: Improper assignment of credit or misrepresentation of material as original without properly referencing the original authors.
- f. Facilitating Academic Dishonesty: The deliberate assistance or attempted assistance of another student to commit an act of academic misconduct.
- g. Theft or destruction of library materials or other academic resources.
- h. Violation of codes of conduct described in the University's *Student Handbook*, program or department policies, and/or articulated by instructors either verbally or in writing. Further information regarding academic or academic-related misconduct, and disciplinary procedures and sanctions regarding such misconduct, may be obtained by consulting the current edition of the Creighton University Graduate Bulletin.

## **XI. ACCOMMODATIONS FOR QUALIFYING DISABILITIES**

Creighton University will provide reasonable accommodations for persons with documented qualifying disabilities. However, it is the student's responsibility to request accommodations. Students requiring special accommodations need to get a letter documenting the specific disability from the Office of Disability Accommodations (402-280-2166). This letter should be presented to instructor at the beginning of the course, so the accommodation can be discussed with your instructor.

## **XII. INDIVIDUAL DEVELOPMENT PLANS FOR GRADUATE STUDENTS**

Individual Development Plans (IDPs) are recognized for fostering professional development. The purpose of an IDP is to assist with

- Identifying professional goals and objectives;
- Assessing one's skill set relative to their career goals;
- Developing a plan to acquire the skills and competencies needed to achieve short- and long-term career objectives.

We have adopted the approach recommended by the Federation of American Societies for Experimental Biology (FASEB) and the American Association for the Advancement of Science (AAAS) that utilizes a website tool designed to help graduate students and postdoctoral fellows to create an IDP. This free website tool is called myIDP (<http://myidp.sciencecareers.org>). It provides:

- Exercises to help you examine your skills, interests, and values.
- A list of 20 scientific career paths with a prediction of which best fit your skills and interests.
- A tool for setting strategic goals for the coming year, with optional reminders to keep you on track.
- Articles and resources to guide you through the process. It also contains links to career resources and tools to help you develop concrete plans, attend workshops, networking etc.

For more information about the tool, see the editorial published in Science written by Bruce Alberts, Editor-in-Chief of Science, and Jim Austin, Editor of ScienceCareers.org. <http://www.sciencemag.org/content/337/6099/1149.full>

## Outline of the IDP Process

The development, implementation, and revision of IDPs require a series of steps to be conducted by graduate students or post-doctoral fellows and their mentors. These steps are an interactive effort, and so both the student and the mentor must fully participate in the process.

After completing the myIDP exercises and developing a plan, you should establish a mentoring team (as described in myIDP) to help you reach your career goals. This team will likely include your major advisor and advisory committee members. Likewise, it could include individuals outside your department or school. And as a student, your mentoring team serves a different purpose than your degree program's advisory committee. As you use myIDP to create your own plan, you should share selected portions of the plan with your mentoring team to discuss your accomplishments and goals in light of the MMI program objectives and your career aspirations.

## Soliciting Guidance<sup>†</sup>

As you use myIDP to create your own plan, you need to be prepared to share selected portions of the plan with your mentor/supervisor. The following are tips to facilitate the discussion:

- Make an appointment separate from other lab meetings. This should not be a ten-minute add-on to a discussion about your data. It needs to be a discussion focused on your career.
- An environment away from the lab will eliminate distractions.
- Start out on a positive note – "I've really enjoyed my last year in the lab. I feel I've made great progress on my research project and now I'm beginning to think ahead to the next step in my career".
- Do not attempt to share your entire IDP. Prepare a concise outline of what you want to discuss. myIDP facilitates this by allowing you to print out a selected portions of your IDP.
- Be prepared to negotiate! If your plan A is to teach science in a liberal arts college, you will need to get comprehensive teaching experience (developing syllabus, delivering lectures, engaging students in active learning, writing exams, giving grades, etc.). As this will inevitably take time away from the laboratory, you need to agree on how the research will get done.
- It is not reasonable to expect a single person to be an expert in everything you need to learn. You should expect to develop a "mentoring team" consisting of experts in different dimensions of science. As you identify skill areas that need work, you would be best served by seeking out different mentors for different skills.
- Extend your mentoring network beyond the bounds of your current department or institution.

## For Mentors/Advisors

- Step 1. Become Familiar with Available Opportunities

By virtue of experience you should have knowledge of some career opportunities, but you may want to familiarize yourself with other career opportunities and trends in job opportunities (refer to sources such as National Research Council reports and *Science* career reviews).

- Step 2. Discuss Opportunities with the Graduate Student or Postdoctoral Fellow

This needs to be a private, scheduled meeting distinct from regular research-specific meetings.

- **Step 3. Review IDP and Help Revise**

Provide honest feedback, both positive and negative, to help graduate students and postdoctoral fellows set realistic goals. Agree on a development plan that will allow them to be productive in the laboratory and adequately prepare them for their chosen career.

†From a pre-print article from *ScienceCareers.org* 2012 by P. Clifford, C. Fuhrmann, B. Lindstaedt, J. Hobin.

### **XIII. COMMENCEMENT EXERCISES**

Although successfully passing the written comprehensive exam grants you candidacy for the M.S. degree, you may not walk through commencement exercises until the final thesis (signed by the Major Advisor and Graduate School Dean) has been received in the Graduate School office.

**THE GRADUATE FACULTY**  
**DEPARTMENT OF MEDICAL MICROBIOLOGY and IMMUNOLOGY**

**Richard Goering, Ph.D., Chairman**  
**Patrick C. Swanson, Ph.D., Graduate Program Director**

**Primary Appointees:**

Bartz, Jason C., Ph.D.,

Belshan, Michael, Ph.D.  
Bourret, Travis, Ph.D.  
Chaperon, Edward A., Ph.D. (emeritus)  
Chen, Xian-Ming, M.D.  
Drescher, Kristen M., Ph.D.  
Goering, Richard, Ph.D.  
Hanson, Nancy D., Ph.D.  
Knoop, Floyd C., Ph.D. (emeritus)  
Swanson, Patrick C., Ph.D.

**Secondary Appointees:**

**(Primary Appointment shown in parenthesis):**

Bittner, Marvin J., M.D. (Department of Medicine)  
Cavalieri, Stephen J., Ph.D., (Department of Pathology)  
Giger, Donald K., Ph.D. (V.A. Medical Center, Pathology)  
Govindarajan, Venkatesh, Ph.D. (Surgery Cancer Center)  
Gorby, Gary L., M.D. (Department of Medicine)  
Kincaid, Anthony, Ph.D., PT (Department of Physical Therapy)  
Preheim, Laurel C., M.D. (Department of Medicine)  
Shibata, Annemarie, Ph.D. (Department of Biology)  
Varman, Meera, M.D. (Department of Pediatrics)

**Contributed Services Faculty:**

Davis, Catherine, Ph.D.  
Fey, Paul, D., Ph.D. (UNMC)  
Penn, Robert., M.D. (UNMC)  
Rupp, Mark E., M.D. (UNMC)  
Smith, Philip W., M.D. (UNMC)

## THE FACULTY AND THEIR RESEARCH

Jason C. Bartz, Professor, Ph.D., (Veterinary Science), University of Wisconsin, Madison, 1998. Prion diseases, pathogenesis of neurodegenerative disorders, neurovirology.

Michael Belshan, Associate Professor, Ph.D., (Molecular, Cellular, and Developmental Biology), Iowa State University, 1999. Virus-host cell interactions, virus replication and pathogenesis in human immunodeficiency virus (HIV) replication.

Marvin J. Bittner, Associate Professor, M.D. (Infectious Diseases), Harvard Medical School, 1976; Clinical infectious diseases; travel medicine; hospital epidemiology.

Travis J. Bourret, Assistant Professor, Ph.D. (Microbiology and Immunology), University of Colorado Health Sciences Center, 2008. Current research focuses on the interface between the causative agent of Lyme disease, *Borrelia burgdorferi*, and its arthropod vector *Ixodes scapularis*; particularly investigations of (i) the impact of tick-borne reactive oxygen species (ROS) and reactive nitrogen species (RNS) on gene expression, physiology and overall virulence of *B. burgdorferi*; and (ii) the role of the *B. burgdorferi* DnaK suppressor protein (DksA) in sensing and coordinating responses to the diverse environmental signals that *B. burgdorferi* encounters throughout its infectious cycle.

Stephen J. Cavalieri, Professor, Ph.D., (Medical Microbiology), West Virginia University, 1981. Clinical microbiology; antimicrobial susceptibility testing; mycobacteriology; rapid diagnostic testing for infectious diseases; clinical virology.

Xian-Ming Chen, Professor, M.D., (Infectious diseases), Hubei Medical University Xianning Medical School, 1985. RNA regulation of mucosal antimicrobial defense, epithelial cell-parasite interactions, pathogenesis of intestinal cryptosporidiosis.

Kristen M. Drescher, Professor, Ph.D., (Molecular Microbiology and Immunology), Johns Hopkins, 1996. Pathogenesis of demyelinating diseases; Multiple sclerosis.

Richard V. Goering, Professor, Ph.D., (Microbiology), Iowa State, 1972. Molecular techniques for the epidemiological analysis of nosocomial pathogens; genetics of antibiotic resistance.

Gary L. Gorby, Associate Professor, M.D., (Infectious Disease), Northeastern Ohio Universities College of Medicine, 1983. Pathogenesis of *Neisseria gonorrhoeae* infections.

Venkatesh Govindarajan, Associate Professor, Ph.D., (Developmental/Molecular Biology), University of Houston, 1997. Fibroblast growth factor (fgf) signaling during ocular and skeletal development.

Nancy D. Hanson, Professor, Ph.D., (Medical Microbiology), University of Nebraska Medical Center, 1991. Current Research focuses on 1) identification of selective pressures required for the emergence of resistance using analysis tools such as whole genome sequencing, plasmid analysis, regulation of gene expression and protein production and transport, and 2) development of rapid diagnostics for the identification of resistance mechanisms associated with treatment failure in Gram-negative pathogens using Real Time PCR assays, HRM assays, RNA analysis evaluating expression of chromosomal resistance, and protein analysis.

Floyd C. Knoop, Professor, Ph.D., (Medical Microbiology/Biochemistry), University of Tennessee Medical Center, 1974. Mechanisms of NAD-dependent ADP-ribosylation and receptor-mediated transmembrane signalling by microbial toxins; basis of adenylylation and guanylyl cyclase/protein kinase activation.

Patrick C. Swanson, Professor, Ph.D., (Chemistry), University of Michigan, 1995. V(D)J recombination and implications of defects in these processes on B cell development, tolerance, and B cell-related diseases.

**For More Information, See the Department Web Site at [www.mmi.creighton.edu/index.html](http://www.mmi.creighton.edu/index.html)  
And FaceBook page at: <https://www.facebook.com/CreightonMMI>**

**GRADUATE STUDENT INITIAL PLAN OF STUDY  
DEPARTMENT OF MEDICAL MICROBIOLOGY & IMMUNOLOGY**

**Student name (degrees)** \_\_\_\_\_

Degree program: \_\_\_\_\_

Year admitted: \_\_\_\_\_

Major Advisor: \_\_\_\_\_

Date of selection \_\_\_\_\_

**Names of Advisory Committee Members:**

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**Date of selection:** \_\_\_\_\_

**Plan of Study:**

**Date approved by Advisory Committee:** \_\_\_\_\_

**Date submitted to Dean of the Graduate School:** \_\_\_\_\_

**Proposed course work: Course Number**

**Semester**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Signatures with date of meeting:**

**Student:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Advisor:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**GRADUATE STUDENT BI-ANNUAL PROGRESS REPORT  
DEPARTMENT OF MEDICAL MICROBIOLOGY & IMMUNOLOGY**

**Report for Spring Semester** \_\_\_\_\_

**Student Name (degrees):** \_\_\_\_\_

**Degree Program:** \_\_\_\_\_ **Year Admitted:** \_\_\_\_\_

**Major Advisor:** \_\_\_\_\_

**Names of Advisory Committee Members:**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Plan of Study:**

**Date approved by Advisory Committee:** \_\_\_\_\_

**Date submitted to Dean of the Graduate School:** \_\_\_\_\_

<b>Titles of courses taken during Reporting semester:</b>	<b>Course Number</b>
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_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Signatures with date of meeting:**

**Student:** \_\_\_\_\_ **Advisor:** \_\_\_\_\_

**Date:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Comments:** (Attach a separate sheet if necessary)

Submit copies to Graduate Dean, Department of Medical Microbiology and Immunology  
Graduate Program Director



PLEASE PRINT

STUDENT: \_\_\_\_\_

Spring/Fall, 20\_\_

DATE OF REPORT: \_\_\_\_\_

Please rate the above student according to the following scale:  
(Mark an "X" in the appropriate box)

1 = Unsatisfactory    2 = Needs Improvement    3 = Competent/Solid    4 = Excellent    5 = Superior/Exceptional

(A mark of 1, 2, or 5 REQUIRES COMMENTS)

(Leave blank if not applicable)

<b>Knowledge/Interpretation</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Critical Thinking &amp; Problem Solving Skills</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Affective Skills</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
General Knowledge						Quality of Presentation						Oral Speaking Skills					
Knowledge of Basic Science						Accuracy of Data Collections						Interpersonal Skills with Faculty and Staff					
Interpretation of Data and Development of Experiments						Quality of Written Records and Reports						Enthusiasm, Amount of Effort, Participation & Responsibility					
Preparation for Meeting – Handouts, Figures, etc.						Critical Reasoning and Judgment						Takes Initiative					
Responses to Questions						Research Progress						Reliability and Dependability					
						Ability to Identify Problem(s)						Progress in Coursework					

**Overall progress in research project:**

- PASS:** Adequate level of knowledge. Able to correctly demonstrate and apply knowledge in relevant situations.
- FAIL:** Inadequate knowledge in the discipline. Unable to relate learning to research situations. Distant and/or showed little interest.

COMMENTS: STRENGTHS/WEAKNESSES (A mark of 1, 2, or 5 REQUIRES COMMENTS)

Continue on Back

EVALUATOR: \_\_\_\_\_

Signature of EVALUATOR: \_\_\_\_\_

## Annual Graduate Student Activity Profile (SAP)

**Instructions: For your spring thesis/dissertation committee meeting, please fill out this form electronically and send the completed form to Joy Hart-Nielsen in the Department Office and Dr. Patrick Swanson, Graduate Program Director. Print copies for each of your committee members.**

Name \_\_\_\_\_ Major Advisor \_\_\_\_\_

Date of Report \_\_\_\_\_

### Annual Progress Report

List the manuscripts published during the previous year (January-December) where you were an author or coauthor. Include the full author list, title, journal/book chapter, and reference (volume/pages or hyperlink). Use the following as a template. If none, indicate none.

Palmer VL, Nganga VK, Rothermund ME, Perry GA, Swanson PC. Cd1d regulates B cell development but not B cell accumulation and IL10 production in mice with pathologic CD5(+) B cell expansion. BMC Immunol. 2015 Nov 4;16(1):66

List any presentations you gave outside the Department of Medical Microbiology and Immunology during the past year (January-December). Identify the authors, the type of presentation (oral or poster), the name of the conference and location or institution and department in which you gave the presentation, and the date. Use the following as a template. If none, indicate none.

Schabla NM, Fletcher JT, Perry GA, and Swanson PC. Poster Presentation. VprBP's serine/threonine kinase activity supports V(D)J recombination by promoting expression of RAG1/2. European Congress of Immunology. Vienna, Austria. 6th September, 2015.

List any recognition awards or funding awards you received during the past year. If none, indicate none.

List any research conferences you attended where you did not give a presentation. If none, indicate none.

**CREIGHTON UNIVERSITY  
GRADUATE SCHOOL  
MEDICAL MICROBIOLOGY & IMMUNOLOGY**

**THESIS DEFENSE REPORT  
FOR MASTER'S DEGREE**

**Name of  
Candidate:**

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
(Last) (First) (Middle) (Degree)

**Date:** \_\_\_\_ / \_\_\_\_ / \_\_\_\_

To the Dean of the Graduate School and the members of the Board of Graduate Studies:

The Department of Medical Microbiology & Immunology, in which this candidate for this degree has done his (her) major (core) work, reports upon the thesis defense as follows:

<b>Passed</b> _____	<b>Failed</b> _____
_____	_____
_____	_____
_____	_____

**Committee Chair -**

It is recommended that the degree (be, be not) \_\_\_\_\_ conferred on the above named candidate.

Date \_\_\_\_\_

\_\_\_\_\_  
**Richard Goering, Ph.D.**  
Department Chair

\_\_\_\_\_  
**Patrick C. Swanson, Ph.D.**  
Graduate Program Director

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**To the President and the Board of Directors:**

The Board of Graduate Studies recommends that the degree of \_\_\_\_\_  
Be conferred on the above named candidate.

Date \_\_\_\_\_

\_\_\_\_\_  
(Dean of the Graduate School and  
Chairman of the Board of Graduate Studies)

# Syllabus and Assessment Criteria for MIC 799 Master's Thesis and Defense

Student Name \_\_\_\_\_ Major Advisor \_\_\_\_\_ Evaluator \_\_\_\_\_ Final Grade \_\_\_\_\_

## Course Description and Objectives

This course consists of original investigation under supervision and guidance of the major advisor and advisory committee. Upon successful completion of this course, students will:

- Demonstrate a depth of knowledge in all areas fundamental to the general research area.
- Be able to resolve scientific problems independently, critically assess the scientific literature, and formulate clear research questions.
- Be able to test and examine the research question experimentally, process the results using adequate empirical methods, and draw proper conclusions from the study.
- Be able to communicate their work with precision, accuracy, clarity, and completeness both orally and in writing.
- Be able to demonstrate critical and independent thought.

**Academic Honesty:** Students are required to follow the Creighton University policy on proper academic conduct, as detailed in the current Creighton University Graduate Student Bulletin.

**Grading Criteria:** Using these guidelines, indicate your assessment for this student's thesis and presentation. Not all criteria may apply and not all have to be met within a category to assign a grade. Criteria listed are modified from "How to Grade a Dissertation: The Characteristics of Dissertations, 2005" by the American Association of University Professors.

Outstanding (A)	Very Good (B)	Conditional (C)	Unacceptable (F)
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### Written Thesis Introduction

<input type="checkbox"/> Asked a new question or addressed an important problem leading to new avenues of research.	<input type="checkbox"/> The question or problem addressed was logical and traditional.	<input type="checkbox"/> Question or problem was highly derived from the advisor's work.	<input type="checkbox"/> Looked at a question or problem that was trivial, weak, unoriginal, or already solved.
<input type="checkbox"/> Exhibited mature, independent thinking.	<input type="checkbox"/> Had some original ideas, insights, and observations.	<input type="checkbox"/> Displayed a narrow understanding of the field.	<input type="checkbox"/> Did not show an understanding of basic concepts or conventions of the discipline.
<input type="checkbox"/> Displayed a deep understanding of complicated literature.	<input type="checkbox"/> Showed understanding and mastery of the subject matter.	<input type="checkbox"/> Demonstrated understanding at a simple level.	<input type="checkbox"/> Missed relevant literature; sources were misread or misused.
<input type="checkbox"/> Argument was focused, logical, thoroughly researched, and sustained.	<input type="checkbox"/> Made a strong, comprehensive, and coherent argument.	<input type="checkbox"/> Could sustain an argument, but the argument was not imaginative or convincing.	<input type="checkbox"/> Had a weak, inconsistent, unconvincing, or invalid argument.
<input type="checkbox"/> Using well-developed rational, an intriguing hypothesis with clever specific aims was proposed.	<input type="checkbox"/> A hypothesis was clearly stated accompanied by appropriate specific aims.	<input type="checkbox"/> A hypothesis could be inferred but was not stated; some of the aims did not test the hypothesis.	<input type="checkbox"/> Did not state or provide sufficient background for a hypothesis to be deduced.

### Methods and Techniques

<input type="checkbox"/> Had a research design with the potential to change the experimental approaches others use to resolve their questions.	<input type="checkbox"/> Included well-executed research using a solid approach.	<input type="checkbox"/> Showed the ability to do research and demonstrated technical competence.	<input type="checkbox"/> Poor execution of laboratory methods was evident from the document and results.
<input type="checkbox"/> Used or developed new tools, methods, or types of analyses.	<input type="checkbox"/> Used appropriate theory, methods, and techniques.	<input type="checkbox"/> Missing some appropriate controls.	<input type="checkbox"/> Used inappropriate or incorrect methods..

### Results

<input type="checkbox"/> Results were highly important, interesting, and relevant to the hypothesis.	<input type="checkbox"/> Obtained solid, expected results that addressed the hypothesis.	<input type="checkbox"/> Results were not noteworthy or relevant to the hypothesis.	<input type="checkbox"/> Had data that was flawed, false, or misinterpreted. Included results already known.
<input type="checkbox"/> Analysis was comprehensive, complete, sophisticated, and convincing.	<input type="checkbox"/> Analysis was adequate and valid.	<input type="checkbox"/> Had an unsophisticated analysis—did not explore all possibilities and missed connections.	<input type="checkbox"/> Had wrong, inappropriate, incoherent, or confused analysis.
<input type="checkbox"/> Pushed the discipline's boundaries and opens new areas for research.	<input type="checkbox"/> Made a modest contribution to the field but did not open it up.	<input type="checkbox"/> Made a small contribution that was narrow in scope.	<input type="checkbox"/> Did not make a contribution.

<input type="checkbox"/> Effort and productivity exceeded expectations resulting in peer reviewed publications and presentations.	<input type="checkbox"/> Effort and productivity met expectations resulting in published abstracts and presentations.	<input type="checkbox"/> Effort and productivity was only adequate. Independent of technical hurdles, research progress was protracted.	<input type="checkbox"/> Effort and productivity was poor and completion of the thesis required contributions by others.
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### Discussion and Conclusions

<input type="checkbox"/> Exhibited command and authority over the material. Had a point of view presented with a confident, independent, and authoritative voice.	<input type="checkbox"/> Applied known literature to the problem studied.	<input type="checkbox"/> Presented the literature but was not critical of it.	<input type="checkbox"/> Showed a poor understanding of the literature; showed a lack of basic knowledge or careful thought; did not explain or interpret results.
<input type="checkbox"/> Conclusion tied the whole thesis together and was extremely well written.	<input type="checkbox"/> Identified what observations were important and was well organized.	<input type="checkbox"/> Had a weak structure and organization and did not discuss what was important.	<input type="checkbox"/> Had unsupported or exaggerated interpretation. Contained errors or mistakes.
<input type="checkbox"/> Showed a deep understanding of theory.	<input type="checkbox"/> Explored interesting connections but missed some opportunities.	<input type="checkbox"/> Displayed little creativity, imagination, or insight.	<input type="checkbox"/> Did not handle theory well, or the theory was missing or wrong.

### Writing, Figures, Tables, Legends, and Citations

<input type="checkbox"/> Document was very well organized and the quality of writing outstanding. Figures, graphs, tables, and illustration effectively communicated the results and effectively conveyed complicated ideas to the reader.	<input type="checkbox"/> Writing, figures, graphs and tables appropriately conveyed information and results.	<input type="checkbox"/> Format and writing needed significant revision. Figures, graphs and tables were rarely used when they could have effectively communicated results and ideas.	<input type="checkbox"/> Figures, graphs, and tables were inappropriate, misrepresented the results, and/or contained errors. It was poorly written and had numerous spelling and grammatical errors.
<input type="checkbox"/> Citations covered the topic very well, were unbiased, and included a historical and up-to-date documentation of pertinent literature.	<input type="checkbox"/> Appropriate citations were used to document the thesis.	<input type="checkbox"/> Citations tended to be superficial in their coverage of the topic.	<input type="checkbox"/> Inappropriate and unrelated citations were used or were inappropriately applied.

### Oral Presentation and Defense

<input type="checkbox"/> Effectively illustrated key points and captivated the audience.	<input type="checkbox"/> Conveyed the major findings of the work and was suitable for the audience.	<input type="checkbox"/> Was adequate in conveying what was done.	<input type="checkbox"/> Was sloppy, confusing, and did not communicate what was done or why.
<input type="checkbox"/> Structure and flow was fluid, easily followed, and effectively conveyed the work and it's significance.	<input type="checkbox"/> Presented in a logical manner and provided a "take-home message" for the audience.	<input type="checkbox"/> "Jumped around some" but still communicated what was needed.	<input type="checkbox"/> Extremely hard to followed, lacked organization, and appeared to have been hurriedly assembled.
<input type="checkbox"/> Media used was extremely effective and creative.	<input type="checkbox"/> Quality of the media conveyed what was done and why.	<input type="checkbox"/> The media used was just adequate.	<input type="checkbox"/> Media used was inappropriate and failed to communicate the work.
<input type="checkbox"/> Questions were answered directly, succinctly, and in an authoritative voice and manner that could change the way people think.	<input type="checkbox"/> Most questions were answered satisfactorily and handled appropriately.	<input type="checkbox"/> Questions were answered if provided guidance by the audience or advisory committee.	<input type="checkbox"/> Questions were not answered even when prodded by the audience or advisory committee.

Comments: