I. Introduction
The information provided in this handbook is for students in the Department of Microbiology, Immunology and Pathology (MIP) graduate degree programs. This document outlines the policies and procedures specific to the MIP Graduate Programs. Additional information is available in the MIP Department code. The policies and procedures of the CSU Graduate School are described in the CSU Graduate and Professional Bulletin.

MIP Graduate Programs: http://www.cvmbs.colostate.edu/ns/departments/mip/graduate/index.aspx
Graduate School: http://graduateschool.colostate.edu/index.aspx

The research programs of the Department of Microbiology, Immunology and Pathology provide excellent opportunities for graduate training at the M.S., Ph.D., D.V.M./Ph.D. and combined Ph.D. and M.S./residency levels in fundamentals of modern investigative microbiology, immunology and pathobiology. Areas of research strength in the department include bacteriology, mycobacterial diseases, prion biology, vector-borne infectious diseases and virology. An emphasis is placed on a multi-disciplinary approach to research problems. This is facilitated by collaborations with major research groups within the College of Veterinary Medicine and Biomedical Sciences. Interpretive diagnostic expertise training is also provided in conjunction with the Veterinary Teaching Hospital and the Veterinary Diagnostic Laboratory.

A. MIP Graduate Programs
A.1. MS and PhD Graduate Programs
Students are admitted as graduate teaching assistants (GTA) or graduate research assistants (GRA). During their first year in the graduate program GTAs complete the required teaching assignments in MIP undergraduate courses, enroll in graduate courses, familiarize themselves with the research opportunities in the department through laboratory rotations, and select a faculty research advisor. Students admitted as a GRA begin their research in an individual faculty laboratory and enroll in graduate courses. Students pursuing the Ph.D. degree are expected to complete and pass a comprehensive preliminary exam by the end of the 5th semester (Fall semester of third year) in the program. To complete the degree, students prepare a thesis (M.S.) or dissertation (Ph.D.) on their original research work and present an oral defense of the thesis or dissertation.

A.2. Combined Residency Graduate Program
Individuals in this program are expected to obtain a Ph.D. or M.S. degree as appropriate for the respective residency program and achieve board certification from the appropriate specialty college. Students pursuing the Ph.D. degree are expected to complete and pass a comprehensive preliminary exam by the end of the 8th semester (Spring semester, fourth year) in the program. To complete the degree, students prepare a thesis (M.S.) or dissertation (Ph.D.) on their original research work and present an oral defense of the thesis or dissertation.

- Anatomic Pathology
- Clinical Pathology
- Comparative Medicine/ Laboratory Animal
- Microbiology
B. Graduate Program Administration

B.1. MS and PhD Graduate Program
Mark Zabel, Associate Department Head for Graduate Education
227 Pathology  (970) 491-1455
mark.zabel@colostate.edu

Heidi Runge, Academic Support Coordinator for Graduate Studies
B128 Microbiology  (970) 491-1630
heidi.runge@colostate.edu

B.2. Residency Program
EJ Ehrhart, Residency Program Coordinator
252 Animal Cancer Center  (970) 297-4086
ej.ehrhart@colostate.edu

Heidi Runge, Academic Support Coordinator for Graduate Studies
B128 Microbiology  (970) 491-1630
heidi.runge@colostate.edu

B.3. Graduate Education Committee
The MIP Graduate Education Committee (GEC) is responsible for formulating policy and establishing standards relating to graduate education. The committee consists of five academic faculty members representing the major programmatic areas of the department, the combined Residency/Graduate Program Coordinator and the MIP Associate Department Head for Graduate Education, who serves as the chair of the committee and two graduate student representatives.

2015-2016 GEC:
Chair: Dr. Mark Zabel, Associate Department Head for Graduate Education
Members: Dr. Brian Foy
Dr. Kelly Santangelo
Dr. Tony Schountz
Dr. Carol Wilusz

Ad-Hoc Member: Dr. EJ Ehrhart, Residency Program Coordinator
Graduate student representatives- PhD program-Kaitlyn Miedema
DVM/PhD - Kristen Davenport

II. Graduate Student Advisers and the First Year of Study
Unless a student is supported by funds from an individual investigator or in one of the combined residency programs, the Associate Department Head for Graduate Education serves as a temporary advisor for first year students. The temporary advisor assists in selection of courses and helps the student identify faculty members whose academic and research interests coincide with the student’s educational goals. Students supported by funds from an individual investigator are exempt from laboratory rotations. The permanent faculty research advisor provides assistance with course selection. All students who are eligible must establish Colorado residency by the end of the first year.
Graduate students in an MIP residency: The MIP residency coordinator will serve as the temporary advisor for the Anatomic and Clinical Pathology residents. The Comparative Medicine residency coordinator will serve as the temporary advisor for the comparative Medicine residents. MIP residents are assigned a permanent residency mentor that advises on residency matters including service work and specialty board preparation.

A. Teaching
Students admitted into the MIP graduate program may be assigned teaching duties in the undergraduate courses offered by MIP. These students are required to attend the GTA Workshop presented by the Institute for Learning and Teaching (TILT) and the Graduate School, which is held the week before Fall semester classes begin. Students with teaching assignments should register for 2 credits of MIP784 (Supervised College Teaching) both fall and spring semesters. The course coordinator will assign a grade for MIP784 and provide an evaluation to the student and the MIP Graduate Program.

B. Laboratory Rotations
Students contact faculty members to arrange three laboratory rotations during the academic year; each rotation is approximately 3 months in length. The Associate Department Head for Graduate Education will assist students in the selection of research laboratories. The student registers for an appropriate number of credits in MIP698 (M.S. students) or MIP798 (Ph.D. students) during the lab rotations. By the end of the first two semesters of study a permanent faculty research advisor is identified and approved by the GEC and Department Head.

  The student and rotation advisor complete the Laboratory Rotation Evaluation Form (Appendix B). The evaluation form is required and is to be submitted to the Associate Department Head for Graduate Education at the end of each rotation. The evaluation form must be completed for assignment of a grade for the research credits.

### 2015-2016 Lab rotations

1st - September 7th through November 24th  
2nd - November 30th through February 19th  
3rd - February 22nd through May 13th

Graduate students in an MIP residency: During the 2nd semester of year 1, students in the MIP residency will meet with the residency coordinator, DVM/PhD coordinator or another residency-associated faculty to discuss research interests and arrange introductions and meeting with research faculty of interest.

C. First Year Evaluation
An evaluation of each student’s potential for success in the program is made at the end of the first year based on performance in coursework, teaching assignments (course coordinators will submit an evaluations) and laboratory rotations. The student will meet with their advisor to discuss the evaluations.

III. University and Department Course Requirements and Program of Study
The student and the student’s graduate committee share responsibility for formulating the coursework in the students' program of study. The program of study for students is based on the student’s academic background, area of specialization and recommendations of the graduate committee. Students must fulfill the core area requirements for their degree program.
departmental areas are defined as bacteriology, virology, molecular genetics (molecular biology), immunology, vector biology and pathobiology (includes prion biology, toxicology, cancer biology).

A minimal cumulative grade point average of 3.0 must be maintained in all formal course work (excludes grades earned in research). A student with a grade point average less than 3.0 will be placed on academic probation.

A. The Student’s Graduate Committee
After identifying a faculty research advisor, the student and major advisor will propose the membership of a graduate committee.

A.1. Composition of the Graduate Committee
The student's graduate committee is composed of at least three members for the M.S. program and at least four members for the Ph.D. program, including the major advisor. The students' major advisor chairs the committee. The committee must have at least one member from outside the MIP Department. The chair must be a member of the Microbiology, Immunology and Pathology faculty. In consultation with the major advisor and the graduate committee a program of study will be formulated. The student’s program of study and names of the graduate committee members will be listed on the Graduate School’s GS6 form and filed with the Graduate School by the end of the third semester.

The student’s graduate committee is responsible throughout the remainder of the student’s graduate career for advice on course work and evaluation of progress in the program. The committee will advise and guide the student in the execution of the research program.

A.2. Annual Performance Evaluation
The student will meet with his/her graduate committee at least once each year to obtain feedback on progress in coursework and research and to discuss plans. The departmental “Annual Progress and Planning Report” (Appendix C) and a one-page summary of research results will be prepared by the student prior to the meeting. Immediately following the meeting the student and major advisor will complete the report. The report will be signed by the student and advisor(s) and submitted to the Associate Department Head for Graduate Education and becomes a part of the student’s file. The report is used to determine whether the student is making satisfactory progress towards the degree (see the Scholastic Standards section of the Graduate and Professional Bulletin).

B. Master of Science Degree
B.1. Course requirements
A list of courses offered in MIP can be found in Appendix A.

Each Master of Science student shall acquire an in-depth knowledge in an area of research and breadth of knowledge by completing formal coursework in two of the core areas defined above. A minimum of 30 credits in courses (numbered 300 or above) and research is required. At least 24 credits must be earned at Colorado State University; 16 of the 24 must be in courses numbered 500 or above and 12 credits should be in regular courses (excludes MIP698 research, MIP699 thesis, MIP700 topics in microbiology and MIP792 seminars). The department requires that 9 of the 12 credits be earned in Microbiology, Immunology and Pathology courses.
M.S. Graduate Program minimum requirements
MIP700- Topics in Microbiology, 1 credit each semester (MS- 2 semesters)
MIP792A-Seminar- Research/Graduate, 1 credit each semester (MS-4 semesters)
MIP 654-Research Policies and Regulations or GRAD 544-Ethical conduct in Research

B.2. Thesis and Examination
Submission to the department of a comprehensive thesis based on the student’s research project is required. Information for preparation and submission of the thesis can be found on the Graduate School web site (http://graduateschool.colostate.edu/current-students/thesis-dissertation/index.aspx).

Each candidate for the Master of Science degree must pass an oral final examination. The exam covers the student’s thesis and two core areas in which the student has specialized. The exam must be completed 5 weeks before the expected graduation. The examining committee consists of the student’s graduate committee with the advisor serving as the chairperson. The title of the thesis, time and place for the examination must be given to the MIP Academic Support Coordinator for Graduate Studies 3 weeks prior to the examination date so that the Graduate School may be notified and announcements may be posted. The final examination is open to the entire faculty; however, non-committee members may participate in the examination only at the invitation of the committee chair. An affirmative vote of a majority of the committee members is required for the student to pass the final examination. The student will obtain the GS Form 24 from the Graduate School (http://graduateschool.colostate.edu/current-students/forms/index.aspx) prior to the examination and after the relevant signatures are obtained will submit the form to the Graduate School within two working days of the examination. A copy of the GS24 form is to be provided to the MIP Academic Support Coordinator for Graduate Studies.

A candidate who fails the final examination may be reexamined once upon recommendation of the graduate committee. Before reexamination, the candidate may be required to carry out additional work. The reexamination will occur between 2 and 12 months after the first examination. Failure of a reexamination will automatically terminate the student’s participation in the graduate program.

Upon recommendation of the advisor and the graduate committee, and with the approval of the MIP Graduate Education Committee (GEC) and the Associate Department Head for Graduate Education, an exceptionally qualified student may transfer to the Ph.D. degree program without completion of the Masters degree. In order to transfer from the M.S. to the Ph.D. program a written request from the advisor with approval from each committee member and the GS Form 7 should be submitted to the Associate Department Head for Graduate Education. The student is responsible for obtaining the GS Form 7 (http://graduateschool.colostate.edu/current-students/forms/index.aspx) from the Graduate School. The completed GS7 form with the relevant signatures will be submitted to the Graduate School and the MIP Graduate Program will be provided a copy.

C. Doctor of Philosophy Degree
C.1. Course Requirements
A list of courses offered in MIP can be found in Appendix A.

Each Ph.D. student shall acquire in-depth knowledge in the selected area of research specialization(s) and breadth of knowledge by completing formal coursework in three of the core areas defined above. Adequate knowledge in general biological and physical sciences is also
required. To be recommended for candidacy, in addition to completing the required coursework, students must demonstrate to the satisfaction of their graduate committee that they possess the knowledge, abilities and skills essential for the specialization chosen.

For the Ph.D. degree a minimum of 72 credits in courses (numbered 300 or above) and research is required. An appropriate master's degree or DVM/VMD or equivalent from an accredited college or university may be recommended by the GEC for approval for a maximum of 30 credits. At least 21 credits beyond the M.S. degree are to be earned in courses numbered 500 and above and 16 credits should be in regular courses (excludes MIP798 research, MIP799 dissertation, MIP700 topics and MIP792 seminars). The department requires that 13 of the 16 credits be earned in Microbiology, Immunology and Pathology courses.

C.1.a. Ph.D. Graduate Program requirements
required courses:
MIP700- Topics in Microbiology, 1 credit each semester (PhD- 4 semesters)
MIP792A-Seminar- Research/Graduate, 1 credit each semester (PhD- 8 semesters)
MIP 654-Research Policies and Regulations, 1 credit
or GRAD 544-Ethical Conduct in Research
or CM666- Science and Ethics

highly recommended:
MIP540 Biosafety in Research Laboratories, 2 credits
MIP643- Grant Writing for Microbiology/Pathology, 1 credit
MIP666-Writing Scientific Manuscripts, 3 credits

C.1.b. Combined Residency M.S./Ph.D. Degree Program requirements
C.1.b.i. Anatomic (AP) and Clinical Pathology (CP) Residency/Graduate Program
Anatomic and Clinical Pathology Residents: required courses
MIP 786A-Practicum-Comparative Gross and Histologic Pathology (AP-variable credit)
MIP 786B-Practicum-Surgical Pathology (AP-variable credit)
MIP 786C- Practicum-Clinical Pathology (CP-variable credit)
MIP 792A-Seminar-Research/Graduate, 1 credit each semester
(minimum: MS- 4 semesters, PhD- 8 semesters)
MIP 792C-Seminar- Microscopic and Bioanalytic Pathology, 1 credit seminar every semester
(AP/CP-minimum of 6 credits)
MIP792D-Seminar-Anatomic Pathology, 1 credit seminar every semester (AP-minimum of 6
credits)
MIP792E-Seminar-Clinical Pathology,1 credit seminar every semester (CP-minimum of 6 credits)
MIP796-002- Group Study- Surgical Pathology
MIP 654-Research Policies and Regulations or GRAD 544-Ethical Conduct in Research or CM666-
Science and Ethics, 1 credit
MIP700- Topics in Microbiology or approved substitutions, (MS- 2 semesters, PhD- 4 semesters)
Approved substitutions:
MIP796-010 Group Study-Gross Pathology
MIP796-003 Group Study-Bioanalytic Pathology
MIP796-005 Group Study-Contemporary Topics in Comparative Medicine
MIP796-001 Group Study- Translational Medicine
Clinical Pathology Residents: required courses
MIP675- Advanced Bioanalytic Pathology, 3 credits
MIP796-003- Group Study- Bioanalytic Pathology, 1 credit (every semester through residency)

Highly recommended courses:
MIP540 Biosafety in Research Laboratories, 2 credits
MIP615 Ophthalmic Pathology, 1 credit
MIP 651-Immunobiology, 3 credits
MIP778 Pathobiology of Laboratory Animals, 3 credits
MIP780- Board Preparation in General Pathology, 2 credits
BC 563-Molecular Genetics, 4 credits
BC 565-Molecular Regulation of Cell Function, 4 credits
VS662- Applied Data Analysis, 3 credits
or
STAT511/512- Design and Data Analysis for Researchers I and II, 4 credits

C.1.b.ii. Comparative Medicine Residency/Graduate Program
MIP786D- Practicum-Comparative Medicine (variable credit)
MIP 792A-Seminar-Research/Graduate, (1 credit/semester) 3 years, (PhD-minimum 8 credits)
MIP 792C-Microscopic and Bioanalytic Pathology Seminar (1 credit/semester) 3 years

MIP 796-005-Contemporary Topics in Comparative Medicine (1 credit/semester, 1 semester/yr as offered) 3 years; this course is a substitute for MIP700.

MIP540-Biosafety in Research Laboratories, 2 credits
MIP666-Writing Scientific Manuscript, 3 credits
MIP778-Pathobiology of Laboratory Animals, 3 credits
MIP780-Laboratory Animal Pathology Practicum, 1 credit
CM666- Science and Ethics, 3 credits

Business/Management (at least 1 of the following):
   BUS 621- Strategic Decision Making, 2 credits
   BUS 625-Organizational Communication, 2 credits
   BUS 630-Information Management, 2 credits
   MGT 305- Fundamentals of Management, 3 credits
   ACT 205- Fundamentals of Accounting, 3 credits
   FIN 305- Fundamentals of Finance, 3 credits

Biostatistics courses: One of the following:
   STAT 301-Introduction to Statistical Methods, 3 credits
   STAT 307- Introduction to Biostatistics, 3 credits
   ERHS 544/STATS 544-Biostatistical Methods for Quantitative Data, 3 credits
   VS562- Applied Data Analysis, 3 credits

Highly recommended courses:
MIP 651-Immunobiology, 3 credits
MIP530- Advanced Molecular Virology
MIP636- Mechanisms of Viral Infection and Disease, 4 credits
MIP643- Grant Writing, 1 credit
BC 463-Molecular Genetics, 4 credits
BC 565-Molecular Regulation of Cell Function, 4 credits
or CM501- Advanced Cell Biology, 4 credits

C.I.b.iii. Microbiology Residency/Graduate Program
MIP 792A-Seminar-Research/Graduate, 1 credit each semester (MS- 4 semesters, PhD- 8 semesters)
MIP 654-Research Policies and Regulations
or GRAD 544-Ethical conduct in Research
or CM666- Science and Ethics
MIP700- Topics in Microbiology, 1 credit each semester (MS- 2 semesters, PhD- 4 semesters)

Highly suggested courses or course topics:
MIP540- Biosafety in Research Laboratories, 2 credits
MIP636- Mechanisms of Viral Infection and Disease, 4 credits
MIP651- Immunobiology, 3 credits
MIP760- Mechanisms of Bacterial Pathogenesis, 3 credits.
Statistics (appropriate course as determined by graduate committee)

D. Preliminary Examination for Admission to Candidacy for the Ph.D.
The Doctor of Philosophy student gains admission to candidacy by passing a comprehensive preliminary examination. The preliminary examination consists of preparation of a written research proposal and an oral exam, which covers the candidate’s entire program of study. The preliminary examination is to be administered by the end of the 5th semester in the graduate program (Fall semester of the third year) or by the end of the 8th semester (Spring semester, fourth year) for students in the combined residency/graduate program.

The examining committee consists of the students' graduate committee with the major adviser(s) replaced by an alternate member(s) selected in consultation with members of the Graduate Education Committee. The MIP Associate Department Head for Graduate Education will submit a petition to the Graduate School requesting the substitution of a committee member for the major adviser(s) for the preliminary examination only. The Graduate School must approve the substitution prior to the exam. A committee chair should be identified to communicate directly with the student during preparation of the proposal and to provide a comprehensive written evaluation after the examination. The chair of the committee will be a regular member of the student’s committee. The outside of the department member of the student’s committee cannot serve as the chair. The student’s major adviser(s) may be present for the oral examination and receive a copy of the written proposal but may not influence the course of the examination, may not be present during the discussion of the student’s performance and may not vote as to whether the student passes or fails the exam.

The preliminary examination is designed to emphasize critical thinking, analysis, and the ability to test scientific hypotheses, and not for the exclusive testing of factual information (see Appendix D for guidelines). The written part of the preliminary examination must be completed at least two weeks before the oral examination is administered. The oral examination covers material from the written proposal, as well as three core areas selected by the student for his or her program.
of study. An affirmative vote of the majority of the committee members is required for the student to pass the preliminary examination. The student is responsible for obtaining the GS Form 16 [http://graduateschool.colostate.edu/current-students/forms/index.aspx](http://graduateschool.colostate.edu/current-students/forms/index.aspx) from the Graduate School prior to the exam and to return the form to the Graduate School after the relevant signatures have been obtained. A copy of the GS16 form is to be provided to the MIP Academic Support Coordinator for Graduate Studies.

A student who fails the preliminary examination may be reexamined once, provided the committee approves and may be required to carry out further work before being reexamined. The reexamination must be held no earlier than 2 months, nor later than 12 months after the first examination. Failure to pass the second examination will automatically terminate the student’s participation in the graduate program.

E. Doctoral Dissertation and Final Examination

Students are required to prepare a comprehensive dissertation based upon independent research conducted during the program of study. The acceptable format for the dissertation is outlined in the Graduate School “Thesis Manual” [http://graduateschool.colostate.edu/current-students/thesis-dissertation/index.aspx](http://graduateschool.colostate.edu/current-students/thesis-dissertation/index.aspx). The content and style of the dissertation are left to the discretion of the student and the graduate committee subject to approval by the Associate Department Head for Graduate Education. The department requires an electronic copy of the dissertation for its library. This copy must contain an original signature page with the signatures of committee members and the Department Head. Each candidate must prepare at least one manuscript for publication on the subject of his or her research and submit it to a refereed journal as a condition of acceptance of the dissertation by the advisor and graduate committee.

Each candidate for a doctoral degree must pass an oral final examination at least five weeks before expected graduation. The examining committee consists of the student’s graduate committee with the advisor serving as the chairperson. The student is responsible for arranging the examination time so that all committee members may attend. The title of the dissertation, time and place for the examination must be given to the MIP Academic Support Coordinator for Graduate Studies at least three weeks prior to the examination date so that the Graduate School may be notified and announcements may be posted. The final examination is open to the entire faculty; however, non-committee members may participate in the examination only at the invitation of the committee chair. The final examination primarily covers the dissertation, but additional subject matter from the three core areas of specialization originally selected by the student may be covered. An affirmative vote of the majority of the committee members is required for the student to pass the final examination. The student will obtain the GS Form 24 and any other required forms from the Graduate School prior to the examination and to return the completed forms to the Graduate School after the relevant signatures have been obtained. The form is to be submitted to the Graduate School within two working days of the examination. A copy of the GS24 form is to be provided to the MIP Academic Support Coordinator for Graduate Studies.

A candidate who fails the final examination may be reexamined once, and additional work may be required before reexamination. The reexamination will occur between 2 and 12 months after the first examination. Failure of the second exam will automatically terminate the student’s participation in the graduate program.

F. Graduate Seminars and Presentations
All graduate students are required to register for seminar (MIP792A) and regularly attend weekly seminars during the fall and spring semesters. Each graduate student is required to present a seminar every other academic year during their graduate studies, beginning in the second year. Students in the combined residency/PhD graduate programs are required to present every other year starting in year three of the program. Final defense seminars will be presented as part of the weekly graduate seminar series or separately.

IV. Graduate School Forms
Graduate School forms and procedures can be found at: [http://graduateschool.colostate.edu/current-students/forms/index.aspx](http://graduateschool.colostate.edu/current-students/forms/index.aspx)
Steps to Graduation can be found on the MIP website: [http://www.cvmbs.colostate.edu/ns/departments/mip/graduate/steps.aspx](http://www.cvmbs.colostate.edu/ns/departments/mip/graduate/steps.aspx)

V. Intellectual Property
Matters of intellectual property arising during a student's graduate studies are governed by Colorado State University policies.

Appendix A- MIP Graduate Courses
Appendix B- Laboratory Rotation Evaluation Form
Appendix C- Annual Progress and Planning Report
Appendix D- Preliminary Exam Document
## APPENDIX A

### Graduate Courses Offered in The Department of Microbiology, Immunology and Pathology

<table>
<thead>
<tr>
<th>Course Number and Title</th>
<th>Offered</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIP530- Advanced Molecular Virology</td>
<td>Spring even years</td>
<td>4</td>
</tr>
<tr>
<td>MIP533- Epidemiology of Infectious Disease</td>
<td>Spring</td>
<td>3</td>
</tr>
<tr>
<td>MIP540- Biosafety in Research Laboratories</td>
<td>Fall, Spring</td>
<td>2</td>
</tr>
<tr>
<td>MIP543- RNA Biology</td>
<td>Fall odd years</td>
<td>3</td>
</tr>
<tr>
<td>MIP550- Microbial and Molecular Genetics Laboratory</td>
<td>Spring</td>
<td>4</td>
</tr>
<tr>
<td>MIP555- Principles and Mechanisms of Disease</td>
<td>Fall</td>
<td>3</td>
</tr>
<tr>
<td>MIP563- Biology of Disease Vectors</td>
<td>Spring odd years</td>
<td>3</td>
</tr>
<tr>
<td>MIP570- Functional Genomics</td>
<td>Fall</td>
<td>3</td>
</tr>
<tr>
<td>MIP577- Computer Analysis in Population Genetics</td>
<td>Fall</td>
<td>2</td>
</tr>
<tr>
<td>MIP578- Genetics of Natural Populations</td>
<td>Fall</td>
<td>4</td>
</tr>
<tr>
<td>MIP615- Ophthalmic Pathology</td>
<td>Fall</td>
<td>1</td>
</tr>
<tr>
<td>MIP624- Advanced Topic in Microbial Ecology</td>
<td>Fall odd years</td>
<td>2</td>
</tr>
<tr>
<td>MIP628- Immunity to Infection</td>
<td>Spring odd years</td>
<td>3</td>
</tr>
<tr>
<td>MIP630- Advances in Microbial Physiology</td>
<td>Fall even years</td>
<td>3</td>
</tr>
<tr>
<td>MIP636- Mechanisms of Viral Infection and Disease</td>
<td>Spring odd years</td>
<td>4</td>
</tr>
<tr>
<td>MIP643- Grant Writing for Microbiology/Pathology</td>
<td>Spring</td>
<td>1</td>
</tr>
<tr>
<td>MIP651- Immunobiology</td>
<td>Fall</td>
<td>3</td>
</tr>
<tr>
<td>MIP654- Research Policies and Regulations</td>
<td>Fall, Spring</td>
<td>1</td>
</tr>
<tr>
<td>MIP666- Writing Scientific Manuscripts</td>
<td>Fall</td>
<td>3</td>
</tr>
<tr>
<td>MIP675- Advanced Bioanalytical Pathology</td>
<td>Spring, even years</td>
<td>3</td>
</tr>
<tr>
<td>MIP700- Topics in Microbiology, Immunology and Pathology</td>
<td>Fall, Spring</td>
<td>1</td>
</tr>
<tr>
<td>MIP720- Methods in Carbohydrate Analysis</td>
<td>Spring odd years</td>
<td>2</td>
</tr>
<tr>
<td>MIP760- Mechanisms of Bacterial Pathogenesis</td>
<td>Fall odd years</td>
<td>3</td>
</tr>
<tr>
<td>MIP778- Pathobiology of Laboratory Animals</td>
<td>Spring even years</td>
<td>3</td>
</tr>
</tbody>
</table>

**Experimental Courses:**

<table>
<thead>
<tr>
<th>Course Number and Title</th>
<th>Offered</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIP780A2- Advanced General Pathology</td>
<td>Fall</td>
<td>2</td>
</tr>
<tr>
<td>MIP781A1- Cytopathology</td>
<td>Spring</td>
<td>1</td>
</tr>
<tr>
<td>MIP781A2- Advanced Clinical Pathology</td>
<td>Spring</td>
<td>1</td>
</tr>
</tbody>
</table>
APPENDIX B

COLORADO STATE UNIVERSITY
DEPARTMENT OF MICROBIOLOGY, IMMUNOLOGY & PATHOLOGY

FIRST YEAR PROGRESS REPORT FOR:
__________________________________________  (Student’s Name)

The student must complete the front of this form and discuss with his/her Rotation Adviser the expectations at the beginning of the rotation. At the end of the rotation, the Rotation Adviser will complete the evaluation after discussion with the student. After signature, the student will pass the form to each subsequent adviser at the beginning of the rotation. The temporary adviser will complete the form and submit it to the department file at the end of spring semester (due May 31).

A. Personal Information

Name: _________________________________

Degree: ______________________________

B. Laboratory Rotations

1) September 7, 2015 through November 24, 2015

Student’s and Adviser’s expectations for first rotation with

__________________________________________  (Adviser’s Name)

Evaluation of first rotation (completed by rotation adviser):

__________________________________________

Adviser’s Signature, Date

__________________________________________

Student’s Signature, Date
APPENDIX C

GRADUATE STUDENT PROGRESS AND PLANNING REPORT
Colorado State University
Department of Microbiology, Immunology & Pathology

To assist in the evaluation of the progress and accomplishments of graduate students, an annual meeting with the student’s graduate committee will be held. The departmental “Progress and Planning Report” will be updated at the time of each committee meeting. It is expected that students will meet with their graduate committee at least every 12 months. The first committee meeting should occur within 3 months after selecting a lab. A copy of the form will be provided to each committee member at the time of the committee meeting. The report will become part of the student’s file and is used to determine whether the student is making satisfactory progress towards the degree.

Name: ___________________________________________ Degree Sought: ________________

Semester and Year you started your degree program:
__________________________________________

Semester and Year you anticipate completing your degree program:
__________________________________________

Advisor: ____________________________________________

Committee Members: ____________________________________________

__________________________________________

__________________________________________

__________________________________________

__________________________________________

__________________________________________

outside committee member

Date of Preliminary Exam (not applicable to M.S. students): ______________________________

Date of Final Defense: ______________________________
I. Teaching:
List the courses you taught and include a copy of your teaching evaluations for the file

Courses taught

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<th>Semester/Year</th>
<th>Course Taught</th>
<th>Evaluations received</th>
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**Mentoring** (includes undergraduate, graduate students, postdoctoral fellows, high school students)

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<tr>
<th>Name</th>
<th>Semester/year</th>
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II. Course Work: (List all courses on your GS6 form, indicate the semester the course was taken or is planned, indicate grade)

<table>
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Semester taken/planned</th>
<th>Grade</th>
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III. Committee Meetings:
The following information is to be completed for each committee meeting:

Date of Committee Meeting: ________________________________

Presentations and Posters Given: (include graduate student seminar- MIP792 and oral presentations and/or posters at all professional meetings). It is expected that students will present a poster or oral presentation annually. Please append abstracts and published manuscripts for your file.

Publications:
  Published:

  Submitted:

  In preparation:

Service Activities: (Department, College, University committees; judging at poster symposiums, science fairs, Celebrate Undergraduate Research and Creativity Symposium, CVMBS Research Day)

Other Accomplishments: (awards, grants submitted and awarded, fellowships submitted and awarded, etc.)

Professional Meetings Attended:

Summary of Research Progress: (Address progress on previous years goals)

Goals for Coming Year

Student signature ___________________________________________ date __________________

Mentor signature ___________________________________________ date __________________
Students are required to pass a comprehensive preliminary examination for admission to candidacy for the PhD. This examination consists of preparation of a written research proposal and an oral exam, which covers the candidate's entire program of study. This document provides guidelines to be used by the student and the student's graduate committee during preparation for and administration of the examination.

A. Timing

The comprehensive preliminary exam is to be administered by the end of the 5th semester in the graduate program (Fall semester of the third year) or by the end of the 8th semester (Spring semester, fourth year) for students in the combined residency/graduate programs. Failure to comply with this requirement will result in the MIP Graduate Education Office placing a hold on registration. Students are encouraged to take the preliminary exam before or early during the 5th semester. The student is responsible for notifying the MIP Graduate Education Office (Academic Support Coordinator for Graduate Studies, B128 Microbiology) of intent to hold the examination. In addition, the student will provide the MIP Graduate Education Office with documentation (copies of the GS16 form, the proposal and the examiners’ evaluations) upon completion of the exam, regardless of the outcome.

The time line for the examination is provided below:

- **10 weeks prior to the exam:** The MIP Graduate Education Office is notified of intent to take the examination and the date. The student and adviser will identify an alternate committee member(s) (see below: Examination Committee) and inform the Associate Department Head for Graduate Education. The Associate Department Head for Graduate Education will submit a petition to the Graduate School requesting substitution of committee member(s).

- **8-9 weeks prior to the exam:** The student will provide the examination committee with a one-page document describing the Specific Aims of her/his proposal. The student will meet with her/his graduate committee (including the advisor(s) and alternate committee member(s), discuss the exam format using this document as a guide, and set a date for the oral exam. The committee will review the Specific Aims and provide comments to the student (see D1 below). The student will identify three of the core departmental areas (bacteriology, virology, molecular genetics, immunology, parasitology, vector biology and pathobiology) to be covered during the oral exam (see D3 below).

- **6 weeks prior to the exam:** Revisions to the Specific Aims will be approved by the student's graduate committee. Student begins writing the proposal.
2 weeks prior to the exam: The final proposal will be provided (electronic copy) to each committee member for evaluation, along with an electronic copy of the preliminary examination evaluation form.

Given this time line, the first committee meeting to discuss the Specific Aims should occur no later than the third week in October of the student’s fifth semester (or the third week in March of the eighth semester for students in the combined program).

Four weeks of concentrated effort are allowed for preparation of the written proposal.

B. Examination Committee
The examination committee consists of the student’s graduate committee with the major adviser(s) replaced by an alternate member(s) selected in consultation with members of the Graduate Education Committee. The alternate committee member(s) should have similar expertise as the advisor(s), especially if remaining members do not have similar expertise. The MIP Associate Department Head for Graduate Education will submit a petition to the Graduate School requesting the substitution of committee member(s) for the major adviser(s) for the preliminary examination only. The Graduate School must approve the substitution prior to the exam. A committee chair should be identified to communicate directly with the student during preparation of the proposal and to provide a comprehensive written evaluation after the examination. The chair of the committee will be a regular member of the student’s committee. The outside of the department member of the student’s committee cannot serve as the chair. The student’s major adviser(s) may be present for the oral examination and receive a copy of the written proposal but may not influence the course of the examination, may not be present during the discussion of the student’s performance and may not vote as to whether the student passes or fails the exam. While the student's advisor does not participate (ie: ask questions, vote) in the oral examination, the advisor(s) may be involved during preparation of the proposal (see section D).

C. Preparation for the Preliminary Exam
The MIP Department will offer a grant writing class (MIP643) in the spring semester every year. All 2nd year PhD students and 3rd year students in the combined programs are strongly encouraged to register for this class during which each student will prepare a research proposal on their own research in a format identical to that required for the preliminary exam. Assistance and advice from the adviser, peers and course instructor(s) are encouraged. No part of the proposal prepared during this class may be utilized in the preliminary exam. Students should also read the literature in their area of study and start to formulate ideas and hypotheses for their research proposal up to 6 months ahead of the preliminary exam.

D. Preparation of the Proposal
Students are encouraged to discuss ideas and possible topics for the research proposal with their advisor, committee members and peers. The hypothesis should be based on the student's original ideas and the student is expected to independently develop the experimental design and interpretation of the proposal. The student should rely on the literature and their own background knowledge to develop a strong, original hypothesis and design an experimental approach to test it. Potential pitfalls and alternative approaches should be considered and the techniques proposed should be appropriate. The experimental approach should rely mainly on techniques other than
those the student routinely uses in their own research. For example, if the student’s research project extensively utilizes ELISA assays for TNF and IL6, these types of assay may not form the bulk of the experiments in the proposal, although they need not be completely avoided.

Seeking outside help: While preparing the proposal the student may consult with her/his advisor, committee members, faculty and peers on experimental approaches and analysis. If you don't understand the principles behind a specific experimental approach you are proposing you are permitted to seek advice from others.

**D1. Evaluation of the Specific Aims**
The student's committee (includes advisor and replacement) is asked to carefully evaluate the Specific Aims before the student prepares the main proposal. Comments and suggestions should be communicated to the student during the committee meeting 8-9 weeks prior to the oral examination. The committee should not overtly suggest better experimental approaches or better hypotheses; it is acceptable to ask that the student formulate another hypothesis and develop new specific aims if those submitted are considered unacceptable. In particular the committee should:

a. Evaluate whether the student is proposing research in a relevant area that is neither too close, nor too far from her/his own research area. For example, a student working on replication of HIV-1 could propose to investigate replication of an alphavirus, or perhaps examine immunity to HIV-1, but it would be inappropriate to focus on replication of FIV. The proposal should not overlap significantly with other projects in the laboratory supervised by the student’s major adviser. In general, the subject matter of the proposal should be close enough to the student’s own area that the knowledge garnered will enhance the student’s understanding of her/his own research. **The committee members are encouraged to use their discretion to determine whether the scope and aims of the proposal are appropriate.**

b. Give the student guidance regarding the scope of the specific aims and make suggestions that could help focus the proposal. For example, if the student proposes too broad a study the committee members could suggest which Aims should be discarded and which expanded.

c. Be available for discussion during the proposal preparation.

**D2. Format of the Proposal**
The proposal template is provided on the MIP Graduate Program Website [http://www.cvmbs.colostate.edu/ns/departments/mip/graduate/current_students.aspx](http://www.cvmbs.colostate.edu/ns/departments/mip/graduate/current_students.aspx). The entire document should not exceed 14 double-spaced pages with 2 double-spaced pages allocated to the Specific Aims. Margins should be no less than 0.5” and the font should be no smaller than 11pt Arial. The main proposal should be divided into Significance and Approach sections. Figures should be embedded in the text and have a font size of no smaller than 8 pt. Use of color figures is acceptable and encouraged.

Students who feel they are deficient in their written language skills are encouraged to consult the CSU Writing Center [http://writingcenter.colostate.edu/index.html](http://writingcenter.colostate.edu/index.html) for assistance. Students are also cautioned that the proposal should be an original, independently prepared document. Plagiarism of ideas or inappropriate use of passages from published documents are not acceptable. The policy and procedures regarding academic integrity at CSU can be found in the Graduate School Bulletin.
D3. The Examination
At the start of the oral examination the student will give a ~10-20 min presentation covering the material in the written proposal. The committee will then question the student to determine how well she/he understands the literature in her/his chosen field of study as well as the background information relevant to the written proposal. The committee will also test the student’s ability to think creatively and communicate her/his ideas orally. **In addition to the material presented in the proposal the student will be questioned on three core areas previously selected by the student for her/his program of study [bacteriology, virology, molecular genetics/molecular biology, immunology, parasitology, vector biology and pathobiology (cancer biology, toxicology, prion biology).**

D4. Overall Evaluation
An evaluation form is provided on the MIP Graduate Program Website. The proposal should not be evaluated as if it were being considered for funding. One goal of the preliminary exam is to ascertain whether the student understands their chosen field of study sufficiently that they can formulate an interesting and original hypothesis and develop a means to test it. The exam also tests the student’s ability to communicate their ideas effectively orally and on paper. The written proposal, the oral presentation and the student’s performance in the questioning period will all be evaluated.

D5. Failing the Examination
The student must pass both the written and oral parts of the examination in order to pass the preliminary exam. If performance in either portion is inadequate, the student fails the examination. In this case, if the committee agrees, the exam may be reexamined once and, for the reexamination, may be required to complete further work. The reexamination must be held not later than 12 months after the first examination. The examination must not be held earlier than two months after the first examination unless the student agrees to a shorter time period. Failure to pass the second exam results in dismissal from the Graduate School. The requirements to pass the second exam should be clearly defined by the committee and may include rewriting the proposal, taking additional classes and/or repeating the oral defense.