

GUIDELINES AND POLICIES FOR THE MASTERS (MS) REASEARCH TRACK IN

MICROBIOLOGY AND IMMUNOLOGY

Medical College of Virginia Campus of
Virginia Commonwealth University
Richmond, VA 23298-0678

July 18, 2013

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GRADUATE CURRICULA IN MICROBIOLOGY AND IMMUNOLOGY

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Introduction:

This document defines the guidelines and policies governing the Doctoral Program in the Department of Microbiology and Immunology, Medical College of Virginia Campus of Virginia Commonwealth University. This is a supplement to the current University Graduate Bulletin. Our Graduate Program includes curricula that lead to the MS degree. The information in this document has been prepared as a guide for the graduate faculty and graduate students in the Department. All faculty and students should be thoroughly familiar with the information provided, and should adhere to these guidelines and policies in formulating the student's curriculum of education.

Graduate Program Committee (GPC):

The Graduate Program Committee (GPC) in Microbiology and Immunology is responsible for the implementation and management of the graduate program, as described in this document, and for formulating new or amended policies and practices that are subject to approval by vote of the graduate faculty. The GPC should include representatives from the major research areas of the department. The Chair of the Microbiology and Immunology Department appoints the GPC Chair and one representative from each research track through the Chair's advisory system. Additional membership of the GPC consists of one affiliate appointee elected by the faculty of the Department of Microbiology and Immunology.

Application for Graduate Study in Microbiology and Immunology:

Inquiries regarding information or admission to the graduate program in Microbiology and Immunology are referred to the Chair of the GPC for processing. Formal application is made through the Virginia Commonwealth University Admissions Office, which forwards completed applications with attendant required GRE scores and other documents to the Department. Applicants may apply for admission to begin studies in any semester of the academic year, but Fall admission is recommended. Specific requirements for admission to the graduate program are defined in the University Graduate Bulletin. Admission requirements for graduate studies in Microbiology and Immunology are flexible. However, knowledge of Organic Chemistry, Fundamentals of Biology, and College Mathematics is considered necessary to pursue advanced studies. Students having a knowledge of College Physics and Analytical Chemistry will also find this helpful in pursuing their studies in Microbiology and Immunology. Foreign applicants who do not use English as their primary language must take the Test of English as a Foreign Language (TOEFL) examination and are expected to achieve a score of 600 or higher.

Selections among the applicants are made after consideration of individual qualifications and availability of facilities. Preference is given to applicants who present academic potential for Microbiology and/or Immunology as demonstrated by their previous academic achievements including grade point average, Graduate Record Examination scores, and personal recommendations. Admission to graduate study in the Department of Microbiology and Immunology leading to the M.S. degree requires majority approval and

recommendation by the GPC, and acceptance by the Head of the Graduate Program in the School of Medicine.

Assignment to a Temporary Advisor:

All new students entering each year will be assigned to a temporary advisor who is a faculty member of the Department of Microbiology and Immunology and also a member of the Graduate Faculty of the School of Medicine. Temporary advisors are appointed by the GPC in consultation with the Chair of the Department. A student may request a change of temporary advisor by submitting a written request to the GPC (attention: Chair of the GPC).

Student Support:

Entering M.S. and Certificate students are typically self-supporting. M.S. students conducting scientific research who are beyond their 2nd year may be supported if funds are available. However, it is difficult to predict which stipends will become available to the Department of Microbiology and Immunology for dispersal each year to graduate students in a research track. Therefore, acceptance into the Graduate Program cannot be considered a guarantee of financial support to the student. The GPC reviews student records and ranks students competitively based on academic performance, admissions program examination scores, and research progress.

Registration for Courses:

To be considered full-time, all students must be registered for a maximum of 15 credit hours and take a minimum of 9 credits per semester in Microbiology & Immunology (MICR) courses. Registration for less than 9 credit hours during the Fall or Spring semester constitutes "part-time" status and results in a student as not eligible to receive a full-time student stipend. Students register for 3-6 credits (MICR697) during the Summer. The selection of courses each semester should be made in consultation with the student's permanent advisor. Under special circumstances the GPC, in consultation with the student, the student's advisor, and the relevant course directors, can vote to relax these requirements.

Adding, Dropping, or Withdrawing from Courses:

Adding, dropping, auditing, or withdrawing from a course outside of the deadline date set by the University for these changes requires signed approval by the permanent advisor. No form can be submitted to the registrar's office without the student advisor's signature. Under special circumstances, a member of the student's Graduate Advisory Committee (GAC), the Chair of the GPC, or the Chair of the Department of Microbiology and Immunology may sign. Copies of the course change form must be sent to the GPC Chair and to the Course Director. Adding, dropping, withdrawing, or auditing a course after the deadline date set by the University cannot be authorized without a 'Special Action' form. These changes require a request in writing to the GPC signed by the student's major advisor. If the GPC approves the student request, then the student must fill out a 'Special

Action' form that must be submitted to the School of Medicine Graduate Committee for approval.

Academic Performance:

The following are minimum requirements of the Department of Microbiology and Immunology for satisfactory performance in graduate studies. An individual's curriculum within the department may have requirements that exceed those indicated below. The time limitation for completing degree requirements is six years for the MS Program.

All full-time first year students must achieve a 3.0 overall grade point average (GPA) in a minimum of 18 graduate credit hours of required courses (exclusive of research), which are typically taken during the first two semesters while in the BSDP program. Students who do not maintain an overall GPA of 3.0 while in the Master of Science Research Track are subject to termination from consideration for admittance to the graduate program in the Department of Microbiology and Immunology. Part-time students must achieve an overall GPA of 3.0 in the first 18 credit hours (exclusive of research) for which they are registered. After the first year of graduate study, continuing students for the MS degrees must maintain an overall GPA of not less than 3.0 for graduate courses. Students who receive a grade of C or less on six credit hours or 20 percent of the credit hours attempted (whichever is greater), or a student who receives a grade of D or F, will be reviewed for possible academic termination by his/her graduate program faculty.

In the event of an unsatisfactory performance - for example, if a student fails to obtain the minimum GPA - the student's GAC or the student may petition the GPC for permission to continue in the program. Any MS student who makes less than a 3.0 GPA in any semester must make at least a 3.0 in graduate courses each semester thereafter and must achieve a cumulative GPA of 3.0 or better before he/she can graduate. A student who has petitioned successfully for continuance in the graduate program who fails to bring the cumulative GPA to 3.0 or better by the end of his/her fourth semester of graduate tenure will be dismissed from the graduate program.

If a student receives a grade of "D", "F" or "U" in any course, then the student must repeat the course(s) and earn a grade of "C" or better to be eligible to receive a degree. A student will be reviewed by his/her graduate program faculty for possible academic termination if he/she accumulates a grade of C or less on six term hours, or 20 percent of the term hours attempted, (which ever is greater), or receives a grade of D or F in the repeat course. The course (credits and grade) can be counted only once for graduation credits. Students may not take the written or oral examination for the Ph.D. degree, if their overall grade point average is below 3.0. Research credits shall not be counted in computing this average, which shall be graded as P = pass, U = unsatisfactory, or F = fail.

In summary, unsatisfactory performance includes: (1) receiving a grade of C or less on six term hours or 20% of the term hours attempted (whichever is greater), (2) receiving a grade of D, F, or U in any course, (3) achieving a GPA of less than 3.0 after the first year of graduate school work, (4) failure of the written or oral examination, or (5) failure of the final oral defense. Failure to achieve and maintain the requirements indicated above

could result in dismissal from the Microbiology and Immunology graduate program. Students with unsatisfactory performance must obtain approval of the School of Medicine Graduate Committee to continue in the graduate program.

Major Advisor Selection:

The selection of a Major Advisor from among the graduate faculty is one of the most important decisions that MS students make during their graduate careers. The advisor will have more influence on a student's training, direction and career choices than any other faculty member. The Major Advisor provides day-to-day guidance during the student's research activities and scientific development, and so predicting a successful working relationship is an important decision for any new student. The philosophy of this Department is to permit students with as much latitude as possible in making this important decision. In addition, the graduate faculty members who wish to accept a student have the responsibility of providing financial support for the student from their own research funds, and this requires careful long-term consideration on the part of the graduate faculty.

All MS students must have either selected a Major Advisor by the end of their second semester of graduate study or have petitioned the GPC to perform an additional rotation. However, all students must have a major advisor prior to final registration for their third academic semester. No requests for assignment to a major advisor can be submitted to the GPC until the first day of the second semester of residence in the graduate program. A letter addressed to the GPC Chair, indicating selection of the permanent advisor, must be sent by the student and bear his/her signature. The letter must be cosigned by the chosen mentor, indicating his/her agreement to the same and that he/she has identified funds to support the student. After approval, the GPC will recommend the appointment to the Chair of the School of Medicine Graduate Committee, who shall make the appointment official. (Please see the Memo of Understanding)

Changing the Major Advisor:

Rare circumstances may arise in which it is in the best interest of a student and/or Major Advisor to dissolve their association, which will necessitate (i) movement of the student to a new laboratory, and (ii) identification of new sources of student funding. In general, this should be viewed as a solution of last resort. Assistance should be sought from the Chair of the GPC or Chair of the Department if a potentially serious problem arises between the student and mentor that cannot be solved to their mutual satisfaction. The student should consult with each member of his/her Student Graduate Advisory Committee. In addition, a Major Advisor may resign as the student's advisor, but this should be discussed first with the Department Chair for practical solutions.

If all attempts at mediation fail, the student may request an assignment to a new major advisor, which must be made in writing to the GPC (attention Chair of the GPC). Following deliberation by the GPC and, if necessary, consultation with the Chair of the Department of Microbiology and Immunology, the GPC will forward a written recommendation to the Chair of the School of Medicine Graduate Committee. Following

deliberation by the GPC and, if necessary, in consultation with the Chair of the Department of Microbiology and Immunology, the GPC will make a recommendation regarding assignment of a new advisor. The written recommendation will be forwarded to the Chair of the School of Medicine Graduate Committee. A decision to assign a new permanent advisor will be predicated on mutual agreement of the prospective advisor and the student.

Student's Graduate Advisory Committee (GAC):

In consultation with the Major Advisor, potential members of a student's GAC should be contacted during the third semester of training. The student should then file the Admission to Candidacy Form and select their GAC in GradTrak (<https://login.vcu.edu/cas/login?service=https://www.apps.som.vcu.edu/gradtrak/login/login.aspx>)

A student's GAC for the MS program is composed of a minimum of three graduate faculty members in which two must hold a primary appointment in the Department of Microbiology and Immunology and one additional graduate faculty members from outside the Department of Microbiology and Immunology. The student's Major Advisor serves as the Chair of the GAC for the MS program and must have an appointment in the Department of Microbiology and Immunology.

The Master's student's progress and development will be monitored and guided by the student's GAC and Major Advisor. The student's GAC will approve the student's dissertation topic, administer the oral examination, oversee the student's thesis research on a regular basis, supervise the thesis defense, and approve the thesis when satisfied with its quality. The student's GAC is responsible for establishing the content of the student's course work in final detail, as well as monitoring the progress of the student's research. The final curriculum for the MS degree shall be formulated and approved by the student's GAC (in consultation with the student) and must be reviewed by the GPC which, in turn, will forward the final curriculum to the School of Medicine Graduate Committee for approval.

The student's GAC will meet with the student at least once a year. Occasions may arise in which it is necessary to change the committee composition, and substitution of one member for another should be accomplished by formal approval of the department GPC.

Records of Graduate Progress:

A "Semester Report on Graduate Student Status" form (see Appendix) documenting the student's progress is submitted to the GPC at the end of each academic semester (e.g., first weeks of January and June) by the student's major advisor. This describes progress with regard to the degree requirements, completion of teaching experiences, and includes comments on the student's overall development and academic/research accomplishments. Major advisors should take advantage of this opportunity to document any concerns about a student's performance in the research laboratory.

The GPC will call a meeting of the Graduate Faculty at least twice each academic year after the end of each semester (e.g., January and June). The agenda may include the following: (1) updating of the Graduate Faculty of the progress of all graduate students in the Department; (2) voting as a faculty on the continuation, promotion, or retention of each graduate student enrolled in the program; (3) discussion of, and/or voting on, faculty related policy developments or changes, and (4) discussion and/or voting on policies or changes in guidelines developed by the GPC. New policies formulated by the GPC become effective only after they have been approved by vote of the graduate faculty of the Department of Microbiology and Immunology. The GPC is authorized to convey to the student in writing, the report of his/ her progress as discussed at the semi-annual Graduate Faculty Meetings.

The "Semester Report on Graduate Student Status" forms will be maintained in the student's permanent file within the Department of Microbiology and Immunology. The file will be used as an aid for assignment of teaching experiences and for monitoring the accuracy of student reports and forms submitted periodically to the Department. The GPC will review the Graduate Student Status forms (at least once per semester) and, if necessary, make appropriate recommendations to the student's GAC. In addition, each student must update on an annual basis his/her student file as to current address.

Appeals:

Under extraordinary circumstances, appeals to the GPC may be made to waive certain Department requirements, but not University requirements. The GPC lacks the authority to waive University requirements and guidelines. Both the student's advisor (and/or GAC) and the student must petition the GPC separately in writing for a waiver. If the GPC considers the petition favorably, the petition will be sent, along with a letter of recommendation, to the office of the Chairperson, School of Medicine Graduate Committee and made a part of the student's permanent file.

Research Track Master of Science (M.S.) Program:

The M.S. student and the student's Graduate Advisory Committee (GAC) will formulate a suitable curriculum of study based on the student's area of specialization. The curriculum of study must be reviewed by the Graduate Program Committee (GPC) of the Department of Microbiology & Immunology, which will forward its approval to the MCV Graduate Program Committee for final approval.

Curriculum: The M.S. degree in Microbiology and Immunology requires a minimum of 30 semester credit hours in graduate courses, exclusive of research credits. This minimum for the curriculum of study will include one (1) credit hour for Microbiology and Immunology seminar (MICR690) (as required for the M.S. degree) and credits earned for research (MICR697). A maximum of 8 semester hours of graduate credits may be transferred and applied toward the degree from another recognized institution, or from another VCU program, upon recommendation of the student's Graduate Advisory Committee (SGAC) and approval by the GPC and the chairman of the MCV Graduate Committee.

A typical curriculum of study for the M.S. degree contains the following nucleus of graduate courses: Biochemistry/Cell and Molecular Biology (MICR530-533), Introduction to Microbiology Research (MICR608-609), Microbiology and Immunology Research Seminar (MICR690), and Directed Research in Microbiology (MICR697), Laboratory Safety (IBMS600), Journal Club (MICR691), and Scientific Integrity (OVPR601 –taken in the Fall semester of year 2). The curriculum should include additional courses which may be selected from the course offerings of the Department of Microbiology and Immunology such as Immunobiology (MICR505), Principles of Molecular Microbiology (MICR515), Mechanisms of Viral and Parasite Pathogenesis (MICR616), Molecular Bacterial Pathogenesis (MICR618), and Molecular Genetics (MICR605). Courses in Special Topics as well as courses from other departments are encouraged.

Laboratory Rotations: MICR608-609 (Laboratory Rotations) generally last one-half semester during the Fall and Spring semesters of the first year. Laboratory rotations provide Ph.D., and M.S. students with an valuable opportunity to interact closely with research faculty members in order to determine a suitable match in terms of scientific interest and personality. First year students rotate in the laboratories of several (usually 3 or 4) faculty members before making an informed decision to join a particular research laboratory. The GPC will make known the faculty members who are available to take students into their laboratories on rotation. These faculty members will present research talks to first year students. Students should also take the opportunity to personally interview faculty members as part of their request of the GPC to consider them for a rotation in a specified faculty laboratory. Assignments to faculty laboratories for these rotations will be made by the GPC with an effort to match the student's interests and training needs with appropriate faculty. Students should contact faculty to whom they are assigned for rotations 1 to 2 weeks prior to beginning rotations in the respective laboratories in order to discuss the upcoming rotation. Students may request changes in their rotation assignments, and this should be presented in writing to the GPC Chair two weeks prior to the start of the respective rotations. Both the former and proposed faculty members must give written (letter or e-mail) approval of the proposed change in rotation assignment.

Seminars: M.S. students are required to attend the Student Research Seminar (MICR 690) and the Department Seminar (MICR690) throughout their tenure in the graduate program even if they are not registered for credit for MICR690. First year students will not give presentations at these seminars and are not required to register. Students must be registered for MICR690 (Fall and Spring semesters) throughout their second and subsequent years. M.S. students must give one research seminar (MICR690) during their tenure in the graduate program. However, M.S. students are encouraged to present a research seminar on an annual basis beginning in their second year of their curriculum of study. The student's Major Advisor may set the presentation of an annual research seminar as a requirement. A seminar presented as part of the M.S. thesis defense will count as fulfillment of the research seminar requirement. The guidelines defining the nature of the presentation are set by the Course Director.

Teaching Responsibility: M.S. students are not required to serve in a teaching assignment, although the Major advisor may recommend such.

Thesis: M.S. students must complete an original, independent research project under the supervision of their advisor. A thesis reporting the results of an original investigation and its significance in relation to existing scientific knowledge must be written. It should conform in general style and format to that of journals such as those published by the American Society for Microbiology (the format is specified by the Dean's office). Each member of the student's GAC must sign a signature page signifying his/her approval of the final thesis document.

Thesis Defense: The student's advisor will schedule the student's thesis defense, and notify the Chair of the MCV Graduate Committee, upon satisfactory completion of all required formal course work, approval of the thesis by the student's GAC, and completion of all other requirements. The Chair of the MCV Graduate Committee will announce the time and place of the defense, along with the candidate's name, department, and thesis title by at least seven days prior to the scheduled day of the defense.

The first part of the thesis defense consists of a seminar in which the student presents the research project. The seminar is open to all interested parties and is followed by questions from the audience. The second part of the defense consists of an Oral Examination conducted in closed session and open only to the faculty and the student's Oral Examination Committee. The Oral Examination Committee consists of all members of the student's GAC and the Dean (or a representative designated by the Dean). However, substitutes for committee members can be designated with prior approval from the Dean's Office. The Oral Examination committee will ask questions concerning the course work and the thesis, and will assess the student's ability to think and communicate using facts and concepts gained from his/her studies. Faculty present who are not members of the Oral Examination Committee are also expected to ask questions but shall not vote on the success or failure of the candidate. The student's advisor, as Chair of the oral examination committee, must allow ample time during the examination for questioning by faculty members. Following the oral examination, the Oral Examination Committee meets in executive closed session to vote. All members of the Oral Examination Committee must vote to either Pass or Fail the student. To pass the oral examination, the student must receive no more than one negative vote. If the student fails the thesis oral examination, he/she after consultation with his/her Graduate Advisory Committee, may repeat the oral examination component within 90 days following approval by the GPC and the Graduate Committee. If the student fails the examination a second time, then he/she is dismissed from the M.S. program.

Certificate to Master of Science (M.S.) Program:

The Certificate program in the School of Medicine at Virginia Commonwealth University currently consists of a Fall and Spring semester of didactic study. As part of this program, upon successful completion of all requirements leading to the award of the Certificate, the student has the opportunity to apply for transition to a Master's program which entails a second year of study that consists of laboratory research. The Department of Microbiology and Immunology is a participant in this program. It is anticipated that the second year of laboratory research begins in the Summer semester that immediately follows the culmination of the Spring semester leading to award of the Certificate and continues through the following Fall and Spring semesters. In order to qualify for the Master's program, the student must attain a grade point average of 3.0 or higher.

The Certificate student who thus is accepted to the Master's program in the Department of Microbiology and Immunology assumes responsibility for her/his financial support and for payment of all university tuition and fees. The Mentor laboratory into which the student is accepted, in turn, assumes responsibility for providing the student with faculty guidance, a research environment, and laboratory resources requisite for successful completion of the student's research project.

M.S. student and the student's Graduate Advisory Committee (GAC) will formulate a suitable curriculum of study based on the student's area of specialization. The curriculum of study must be reviewed by the GPC, which will forward its approval to the MCV Graduate Program Committee for final approval.

Curriculum: The M.S. degree in Microbiology and Immunology requires a minimum of 24 semester credit hours in graduate courses, exclusive of research credits. This minimum for the curriculum of study will include one (1) credit hour for Microbiology and Immunology seminar (MICR690) (as required for the M.S. degree) and credits earned for research (MICR697). A maximum of 8 semester hours of graduate credits may be transferred and applied toward the degree from another recognized institution, or from another VCU program, upon recommendation of the student's Graduate Advisory Committee (SGAC) and approval by the GPC and the chairman of the MCV Graduate Committee.

A typical curriculum of study for the M.S. degree must contain the following nucleus of graduate courses: Biochemistry/Cell and Molecular Biology (MICR503-504), Introduction to Microbiology Research (MICR608-609), Microbiology and Immunology Research Seminar (MICR690), and Directed Research in Microbiology (MICR697), Laboratory Safety (IBMS 600), Journal Club (MICR691), and Scientific Integrity (MICR510). The curriculum should include additional courses which may be selected from the course offerings of the Department of Microbiology and Immunology such as Immunobiology (MICR505), Principles of Molecular Microbiology (MICR515), Mechanisms of Viral and Parasite Pathogenesis (MICR616), Molecular Bacterial Pathogenesis (MICR618), and Molecular Genetics (MICR605). Courses in Special Topics as well as courses from other departments are encouraged (See Appendices II and III).

Courses taken to satisfy the requirements of the Pre-Medical Basic Health Sciences Certificate Program will satisfy the requirement of a minimum of 24 semester credit hours in graduate courses.

Seminars: M.S. students are required to attend the Student Research Seminar (MICR 690) and the Department Seminar (MICR690) throughout their tenure in the graduate program even if they are not registered for credit for MICR690. First year students will not give presentations at these seminars and are not required to register. Students must be registered for MICR690 (Fall and Spring semesters) throughout their second and subsequent years. M.S. students must give one research seminar (MICR690) during their tenure in the graduate program. However, M.S. students are encouraged to present a research seminar on an annual basis beginning in their second year of their curriculum of study. The student's Major Advisor may set the presentation of an annual research seminar as a requirement. A seminar presented as part of the M.S. thesis defense will count as fulfillment of the research seminar requirement. The guidelines defining the nature of the presentation are set by the Course Director.

Students should register for MICR 690 and present a 15 minute presentation on their research project at the end of the Spring semester.

Thesis: M.S. students must complete an original, independent research project under the supervision of their advisor. A thesis reporting the results of an original investigation and its significance in relation to existing scientific knowledge must be written. It should conform in general style and format to that of journals such as those published by the American Society for Microbiology (the format is specified by the Dean's office). Each member of the student's GAC must sign a signature page signifying his/her approval of the final thesis document.

Thesis Defense: The student's advisor will schedule the student's thesis defense, and notify the Chair of the MCV Graduate Committee, upon satisfactory completion of all required formal course work, passing of the written comprehensive examination, approval of the thesis by the student's GAC, and completion of teaching and all other requirements. The Chair of the MCV Graduate Committee will announce the time and place of the defense, along with the candidate's name, department, and thesis title by at least seven days prior to the scheduled day of the defense.

The first part of the thesis defense consists of a seminar in which the student presents the research project. The seminar is open to all interested parties and is followed by questions from the audience. The second part of the defense consists of an Oral Examination conducted in closed session and open only to the faculty and the student's Oral Examination Committee. The Oral Examination Committee consists of all members of the student's GAC and the Dean (or a representative designated by the Dean). However, substitutes for committee members can be designated with prior approval from the Dean's Office. The Oral Examination committee will ask questions concerning the course work and the thesis, and will assess the student's ability to think and communicate using facts and concepts gained from his/her studies. Faculty present who are not members of the Oral Examination Committee are also expected to ask questions but shall not vote on the success or failure of the candidate. The student's advisor, as Chair of the oral

examination committee, must allow ample time during the examination for questioning by faculty members. Following the oral examination, the Oral Examination Committee meets in executive closed session to vote. All members of the Oral Examination Committee must vote to either Pass or Fail the student. To pass the oral examination, the student must receive no more than one negative vote. If the student fails the thesis oral examination, he/she after consultation with his/her Graduate Advisory Committee, may repeat the oral examination component within 90 days following approval by the GPC and the Graduate Committee. If the student fails the examination a second time, then he/she is dismissed from the M.S. program.

MODEL CURRICULUM FOR MASTER'S PROGRAM

Department of Microbiology & Immunology

Semester 1 - Fall (taken by all 1st yr students)

- Temporary Advisor assigned
- IBMS 600 Laboratory Safety (1)
- BIOC 530 Mod 1: Protein Structure and Function (2)
- BIOC 531 Mod 2: Basic Metabolism (1)
- BIOC 532 Mod 3: Central Dogma of Molec (1)
- BIOC 533 Mod 4: Lipids/Membranes & Bio (1)
- MICR 505 Immunobiology (3)
- MICR 515 Principles of Molecular Microbiology (3)
- MICR 608 **1.5** Rotations/Principle Investigator lectures (3)
- MICR 690 Student Research Seminar (Do NOT register - Attendance required)

Semester 2 - Spring (* = student takes 2 of 3 available courses)

- MICR 504 Biochem. Mol. Cell Biol. (5)
- MICR 609 **1.5** rotations (3)
- MICR 616 Mechanisms of Viral & Parasite Pathogenesis (3)* /
- MICR 618 Molecular Bacterial Pathogenesis (3)* or
- MICR 686 Advanced Immunology (2)*
- MICR 690 Research seminar (Register and Attendance required)
- MICR 697 Directed Research to fill schedule

- Cumulative GPA of 3.0 required to continue
- **Permanent Advisor chosen after 4 rotations completed**

Semester 3-4 - Fall / Spring (+ = optional electives)

- MICR697 Research (variable credits)
- OVPR 600 Scientific Integrity (1)
- MICR607 Techniques (2)
- MICR690 Student Research Seminar (1)
- MICR690 Dept. Seminar (Attendance required)
- MICR691 Journal Club (1, Pass/Fail)
- MICR606 Molec. Genetics (3)+
- MICR653 Adv. Molec. Genetics+
- Student's GAC formed, 1st meeting held in the fall

Semester 5-6 - Fall / Spring

- MICR697 Research (variable credits)
- MICR690 Research Seminar (1)
- One of three Journal Clubs:
 - MICR 692 – Current Topics in Molecular Pathogenesis
 - MICR 693 – Topics in Molecular Biology & Genetics
 - MICR 694 - Current Topics in Immunology

MODEL CURRICULUM FOR CERTIFICATE to MASTER'S PROGRAM

Department of Microbiology & Immunology

Semester 1 - Fall (taken during 1st semester of Certificate program)

Required Fall Courses:

- BIOC 530 Mod 1: Protein Structure and Function (2)
- BIOC 531 Mod 2: Basic Metabolism (1)
- BIOC 532 Mod 3: Central Dogma of Molec (1)
- BIOC 533 Mod 4: Lipids/Membranes & Bio (1)
- PHIS 501 Physiology (5)

Fall Electives:

- ANAT 611 Histology (5)
- MICR505 Immunobiology (3)
- NEUS 609 Cellular and Molecular Neuroscience (4)
- IBMS 690 Interdisciplinary Biomedical Sciences Seminar (1)

**Fall Electives (Choose at least 5 credits; courses not appearing on this list may be considered for electives, upon approval).*

Semester 2 - Spring Taken during 2nd semester of Certificate Program

Required Spring Courses:

- MICR/BIOC504 Biochem. Mol. Cell Biol. (5)

Spring Electives:

- IBMS 690 Interdisciplinary Biomedical Sciences Seminar (1)
- MICR616 Mechanisms of Viral & Parasite Pathogenesis (3)* / MICR618 Molecular Bacterial Pathogenesis (3)*
- PHIS 512 ECG and Mechanism of Disease (3)
- PHTX 535 Introduction to Toxicology (4)
- DEPT 697 Directed Research (3)

Total Credits = 27

- Cumulative GPA of 3.0 required to continue
- **Before Transition - Permanent Advisor chosen**

Semester 3- Summer

- MICR 697 Directed Research (3-6 credits dependent on student loan situation)

Semester 4 - Fall (to total 15.00 credit hours)

- IBMS 600 Laboratory Safety (1)
- OVPR 601 Scientific Integrity (1)
- MICR690 Research Seminar (1)
- MICR697 Directed Research (12)*
- Additional courses may be requested by Advisor or GAC which would reduce MICR 697
- Student's GAC formed, 1st meeting held in the fall (?)

Semester 5 - Spring

- MICR697 Directed Research (variable credits)
- Write thesis and follow all Graduation Application deadlines.

Selection of Permanent Advisor Memorandum of Understanding (MOU)
VCU Department of Microbiology and Immunology

Dear: _____ and _____ of the Dept. of

Student Permanent Advisor Advisor's Primary
Department

Congratulations on together making a M.S. student / permanent advisor match. This is an important event, and all the faculty members of the Department of Microbiology & Immunology (M&I) wish you both a successful and productive time of research training and collaboration. The main goal for the student, under the advisor's direction, is to obtain original research findings that will result in both a Master's dissertation and peer-reviewed publications. Good luck to you both.

The primary purpose of this MOU is to advise both the student and advisor of the financial responsibilities inherent in the introduction of a new student into a mentor's laboratory. It is the student's responsibility to pay for his/her tuition and fees for each semester of enrollment. To be considered a full-time graduate student by the University, the student must enroll in 9-15 credit hours for the Fall, Spring and Summer semesters.

Also, the advisor and the student agree by their signatures below to follow the Graduate Program Guidelines for the Department of Microbiology & Immunology (M&I). The advisor agrees to report the progress of the student each semester using the M&I Progress Report Form provided by the M&I Graduate Program Committee. This semester Progress Report will serve as formal documentation of all the important milestones in the graduate student's program of study. Thank you.

Signatures below indicate agreement with the above MOU:

Student Name & Signature / Date

Faculty Advisor Name & Signature / Date

Graduate Program Director Name & Signature / Date

M&I Chair Name & Signature / Date

Advisor's Dept. Chair Name & Signature / Date (for Affiliate Faculty)

Return signed form to Ms. Martha VanMeter, PO Box 980678.

Copies to: SOM Associate Dean for Graduate Education (Dr. Jan Chlebowski), Affiliate Department Fiscal Administrator (if applicable), M&I Program Director (Dr. Guy Cabral), Student and Advisor.

SEMESTER REPORT ON GRADUATE STUDENT STATUS

Department of Microbiology & Immunology

**DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY
SEMESTER REPORT ON GRADUATE STUDENTS**

Semester Report on Graduate Student Status: Fall Spring Year: _____

Student Name: _____

Advisor Name: _____

Degree Sought: MS PhD MD/PhD

Is there an official committee form with the Dean's signature in the student's file in the office?
_____ Yes or No _____

Graduate Advisory Committee:

Date of Graduate Advisory Committee Meetings (One per Academic Calendar Year)	Minutes Submitted

Comments on academic status, grade point average, course work:

Comments on Comprehensive Examination (date of completion or planned examination):

Written Exam (Date Taken)	Passed (Yes or No)	If No, Written exam retaken (Date)	Passed (Yes or No)

If not taken, has the examination been planned? _____

If so, when? _____

Oral Exam (Date Taken)	Passed (Yes or No)	If No, Oral exam retaken (Date)	Passed (Yes or No)

Semester Report on Graduate Student
Page 2

Comments on Research Seminar Presentations:

Comments on Completion of Teaching Experience Requirements:

TA Assignment	Semester Assigned	Completed (Yes or No)

Comments on Student's scholarly productivity (abstracts, manuscripts, oral presentations and attendance at meetings, etc.):

Grant Submission Date	Grant Title	Was grant awarded? (yes or no)

Manuscript Submitted (Title)	Journal	Date

Oral Presentations (Title)	Date Presented	Location (Meeting)

Other Comments (e.g., awards received, etc.):

Changes in Committee composition, course plan, or research project since initial approval by MCV Graduate Committee (if applicable):

Anticipated date of completion of all degree requirements: _____

Advisor signature: _____ Date: _____

APPENDIX V

STUDENT'S GRADUATE ADVISORY COMMITTEE (GAC) MEETING REPORT

Department of Microbiology & Immunology

Student:

Degree Sought / Year in Program:

Major Advisor:

Meeting Date/Time/Place:

Committee Members (NP = indicated if not present):

1.

2.

3.

4.

5.

Comments on the meeting and progress of the student:

Submit completed form to the GPC Chair

SOM WEAVE

School of Medicine

Goals, Objectives and Measures 2008 09

M.S. and Ph.D. Programs

GOALS

The program is designed to provide students with the skills required to advance to positions as bioscience researchers/trainers in a broad spectrum of positions.

The structure of the program provides a framework for the progressive development of a mastery of the current state of the subject matter of bioscience, an ability to synthesize this information and apply this foundation to the identification of key areas of investigation/experimentation in bioscience.

The program relates the above framework to the development of the ability to design, implement and interpret experimental approaches which address the questions identified.

In addition, program will develop skills in the various means of communicating both the core of bioscience knowledge and the expression of experimental design, results and interpretation to a variety of potential audiences.

OBJECTIVES

Oral Communication Skills

The candidate will demonstrate the achievement of an appropriate level of oral communication skills with respect to the content, organization, logical flow, presentation and appropriate use of language incorporating the use of visual aids, as measured by rubric.

Written Communication Skills

The candidate will demonstrate the achievement of an appropriate level of written communication skill with respect to grammar, syntax, spelling and use of vocabulary to effectively present information including the use of figures, tables and citations as measured by rubric.

Experimental Design

The candidate will demonstrate the achievement of an appropriate level of competence in the ability to appraise, modify and / or create and implement experimental protocols and to design and develop experiments as measured by rubric.

Problem Solving Skills

The candidate will demonstrate an appropriate level of skill in the identification and selection of meaningful problems to be addressed in bioscience research, including the ability to defend said identifications and to design and develop appropriate methods to solve said problems as measured by rubric.

Integrated Knowledge of Bioscience

The candidate will demonstrate an appropriate level of knowledge of the current elements of the biosciences as related to disciplinary specialization and a more detailed understanding of the individual area of scholarship, including an appropriate familiarity with the research literature and the ability to evaluate and critique publications as measured by rubric.

MEASURES

Oral Candidacy Examination / Thesis Defense - M.S.

The oral candidacy examination will be conducted by the Advisory Committee consisting of a minimum of three members with an additional *ad hoc* member, appointed by the Office of Graduate Education of the School of Medicine, who serves as the formal Chair of the examination. The examination will consist of a short oral presentation of a description of the research project, based on the thesis prepared by the student and distributed in advance to the examiners. Following the presentation the examining Committee will question the student on both the description presented as well as core elements of knowledge in the discipline. The Committee will review the presentation (both written and oral) following the elements described in the attached rubrics affording a means of inter-rater reviewer reliability. Student performance will be assessed to be adequate (pass) or not adequate (fail) by each member of the Committee based on the individual assessment of the components of the examination as described. Two or more votes to fail results in overall failure of the examination.

Performance Review

The performance of the student is reviewed on a semi-annual basis employing the performance in didactic and research training elements following rubrics appropriate to the objectives of the program. The performance review is conducted by the faculty Advisor in conjunction with faculty participating in the program and/or members of the Advisory Committee affording a means of measuring inter-rater/reviewer reliability.

School of Medicine

Descriptive Rubrics for Learning Objectives for Research-Based M.S. and Ph.D. Programs

1. Oral Communication

The candidate will demonstrate the achievement of an appropriate level of oral communication skills with respect to the content, organization, logical flow, presentation and appropriate use of language incorporating the use of visual aids, as measured by rubric.

Unsatisfactory - Topics are poorly developed with limited or poorly presented supporting details; presentation is unfocussed with limited relationship of aims and supporting information; speaker displays inadequate/inappropriate use of vocabulary, eye contact, posture, presentation appears unpracticed; visual materials poorly support points in the presentation; speaker fails to appropriately address questions

Satisfactory - Topics are adequately developed with inclusion of supporting materials; presentation is appropriately organized and is inclusive of aims and supporting information; speaker appears proficient in presentation skills though occasional flaws are present; presentation is adequately paced with clear exposition and logical presentation; visual materials support points in the presentation; speaker addresses questions adequately

Exemplary - Topic is well developed, effectively supported by relevant information; organization of presentation reflects creation of a well-structured framework; speaker displays consistent use of correct grammar and vocabulary and professional delivery, including eye contact and physical demeanor; visual materials are effective in supporting and enhancing the presentation; speaker addresses questions carefully and thoroughly, integrating additional information in responses

2. Written Communication

The candidate will demonstrate the achievement of an appropriate level of written communication skill with respect to grammar, syntax, spelling and use of vocabulary to effectively present information including the use of figures, tables and citations as measured by rubric.

Unsatisfactory - Document contains numerous grammar, syntax and spelling errors; use of vocabulary is inadequate; content is incomplete and / or inadequately organized to communicate message; presentation of figures and tables disjointed and confusing and / or displays absence / inappropriate use of citations

Satisfactory - Rules of grammar, syntax and spelling are followed with minimal errors; use of vocabulary is appropriate; content is adequately organized to communicate message; presentation of figures and tables provides an enhancement of the message in the presentation; citations are appropriately presented

Exemplary - Rules of grammar, syntax and spelling are consistently followed; vocabulary enhances communication of message; content is creatively organized with smooth transitions in the presentation of the message; use of figures and tables reflects an analysis of effective means of supporting message; citations are appropriately presented

3. Experimental Design

The candidate will demonstrate the achievement of an appropriate level of competence in the ability to appraise, modify and / or create and implement experimental protocols and to design and develop experiments as measured by rubric.

Unsatisfactory - Student fails to recognize limitations in the design of experimental protocols that compromise their suitability for productive research; student displays limited ability to adopt protocol descriptions for experiment and data acquisition; student lacks the level of technical skill to safely pursue unsupervised experimental work

Satisfactory - Student displays appropriate ability to identify experimental protocols appropriate to the research objective; student displays appropriate technical ability to implement protocols for data acquisition

Exemplary - Student displays ability to identify and select experimental protocols most appropriate to the research objective (may include the modification of established procedures); student displays appropriate technical ability to implement protocols for data acquisition

4. Problem Solving Skills

The candidate will demonstrate an appropriate level of skill in the identification and selection of meaningful problems to be addressed in bioscience research, including the ability to defend said identifications and to design and develop appropriate methods to solve said problems as measured by rubric.

Unsatisfactory - Student does many of the following: misinterprets or inaccurately evaluates relevant information; fails to acceptably explain procedures and/or results as related to reasons and claims; does not appropriately evaluate clear alternative explanations; draws unwarranted or fallacious conclusions; does not link evidence or reasoned analysis to claims in an appropriate manner

Satisfactory - Student consistently does most of the following in an appropriate fashion: identifies the appropriate reasons and claims (objective and hypothesis) related to the problem; accurately evaluates relevant information available including presentation of methodology, data reduction and presentation, reference citations, statements and questions, etc.; analyzes the relation of the information to the reasons and claims, including (as appropriate) alternative explanations; draws warranted, non-fallacious conclusions; follows development of evidence to reasoned conclusion

Exemplary - Student consistently does the following in an appropriate fashion: identifies the appropriate reasons and claims (objective and hypothesis) related to the problem; accurately evaluates relevant information available including presentation of methodology, data reduction and presentation, reference citations, statements and questions, etc.; independently analyzes and evaluates the relation of the information to the reasons and claims, including (as appropriate) alternative explanations; draws warranted, non-fallacious and judicious conclusions; follows development of evidence to reasoned conclusion

5. Integrated Knowledge of Bioscience

The candidate will demonstrate an appropriate level of knowledge of the current elements of the biosciences as related to disciplinary specialization and a more detailed understanding of the individual area of scholarship, including an appropriate familiarity with the research literature and the ability to evaluate and critique publications as measured by rubric.

Unsatisfactory - Student demonstrates knowledge of factual material limited to a level appropriate to a baccalaureate graduate in the sciences; knowledge of bioscience related to the student's research area is unrelated to the current research literature

Satisfactory - Student demonstrates ability to apply fundamental concepts to advanced topics in bioscience and ability to relate the current research literature to her or his area of research

Exemplary - Student demonstrates ability to apply fundamental concepts to advanced topics in bioscience and a command of the current research literature related to her or his area of research including the ability to relate the literature to the student's research product

Program Performance Evaluation

Student's Name _____ Student ID No.: V _____

Date: _____ Program: _____ Degree: _____

	Unsatisfactory (1)	Satisfactory (2)	Exemplary (3)
Demonstrates Oral Communication Skills			
Demonstrates Written Communication Skills			
Displays Competence in Experimental Design			
Demonstrates Problem Identification and Solving Skills			
Displays Integrated Knowledge of Bioscience			
Overall			

Oral Candidacy Examination Scoring Rubric

1. Identification and Articulation of the Problem

Unacceptable - Presentation fails to adequately describe aims / objectives and provide relevance to existing bodies of knowledge; rationale for aims / objectives is absent or weak

Acceptable – Aims / objectives are presented; flaws in scope may be present; relevance to existing knowledge is described and an acceptable rationale for aims / objectives is presented

Excellent - Aims / objectives are clearly and succinctly presented; aims are appropriate in scope; a rationale for the aims / objectives is presented

Outstanding - Aims / objectives are structured to provide a logical framework to address the problem providing evidence of a thorough analysis of the existing bodies of knowledge; a compelling rationale for the aims / objectives is presented

2. Expression of Background / Existing Information

Unacceptable - Weak or inappropriate information related to problem/question is presented; lack of appropriate citations

Acceptable – Appropriate information related to problem / question is presented with appropriate citations

Excellent - Information presented related to problem / question displays expanded scope and relevance

Outstanding - Information presented displays expanded scope and relevance and is organized to enhance response to the problem / question presented showing evidence of a critique of prior work on the problem

3. Presentation, Assessment and Analysis of Supporting Evidence

Unacceptable - Confused presentation of information and evidence in support of proposal / presentation

Acceptable – Organization of evidence and analysis is generally clear but may contain flaws

Excellent - Organization of evidence and analysis reflects clear relationships of information supporting proposal / presentation

Outstanding – Organization of evidence and analysis is exceptionally clear in showing relationships of information supporting proposal / presentation including an indication of the relative importance of components of the evidence presented; critical assessment of existing information is evident

4. Develops, Communicates and Explains Project Plan

Unacceptable - Expression of relationship of project plan to aims / objectives is weak or inappropriate; relation of plan in support of elements of hypothesis is flawed

Acceptable - Project plan addresses aims / objectives is appropriate; elements of project plan may be flawed with respect to the strength of data acquisition supporting elements of hypothesis

Excellent - Project plan presentation clearly addresses aims and objectives; components of plan related to elements of hypothesis are logically presented with specific identification of the basis for selection of approaches

Outstanding – Project plan presentation displays evidence of creative approaches to meeting the aims / objectives including the selection and justification of components of the plan; the framework of the project presented provides a logical and convincing approach; alternative approaches may be presented

5. Displays Mastery of Subject Matter

Unacceptable - Student demonstrates knowledge of factual material limited to a level appropriate to a baccalaureate graduate in the sciences; knowledge of bioscience related to the student's research area is unrelated to the current research literature

Acceptable - Student demonstrates advanced knowledge of factual material consistent with graduate level training; displays an awareness of the research literature in the student's research area

Excellent - Student demonstrates ability to apply fundamental and advanced concepts to topics in bioscience and ability to relate the current research literature to her or his area of research

Outstanding - Student demonstrates ability to apply fundamental concepts to advanced topics in bioscience and a command of the current research literature related to her or his area of research; evidence of critical assessment and synthesis of elements of bioscience is apparent

6. Addresses Questions Appropriately

Unacceptable – Limited awareness of expectations of examiner; consistently fails to be appropriately responsive independently; structure of responses weak and/or difficult to follow

Acceptable - Generally aware of expectations of examiner; generally independently responsive to questions with occasional prompting or “leading” required; structure of responses adequate; some clarification / expansion of answers may be required

Excellent - Aware of expectations of examiner; seeks clarification if warranted; independently responsive to questions with limited need for prompts; structure of responses provides evidence of reflective organization of information

Outstanding - Displays informed awareness of expectations of examiner; independently responsive to questions; structure and breadth of content of responses provides evidence of reflective and creative organization of information; evidence of creative synthesis of information suggested / related to questions

7. Demonstrates Ability to Synthesize Information Creatively

Unacceptable - Confused presentation of information and evidence in support of answer(s)

Acceptable – Organization of evidence and analysis is generally clear but may contain flaws

Excellent - Organization of evidence and analysis reflects clear relationships of information supporting response

Outstanding – Organization of evidence and analysis is exceptionally clear in showing relationships of information supporting response including an indication of the relative importance of components of the evidence presented and a critical assessment / analysis of the validity of the information.

Oral Candidacy Examination Performance Evaluation

Student's Name _____ **Student ID No.:** V _____

Date: _____ **Program:** _____ **Degree:** _____

	Unacceptable (1)	Acceptable (2)	Excellent (3)	Outstanding (4)
Identifies and articulates problem				
Discusses background/existing information				
Presents, assesses and analyzes supporting evidence				
Develops, communicates and explains project plan				
Displays mastery of subject matter				
Addresses questions appropriately				
Demonstrates ability to synthesize information creatively				
Overall				

Comment (optional):

Table 1. The Characteristics of Dissertations

Below are the criteria the focus group members specified for each level of dissertation quality.

Outstanding	Very Good
<ul style="list-style-type: none">• Is original and significant, ambitious, brilliant, clear, clever, coherent, compelling, concise, creative, elegant, engaging, exciting, interesting, insightful, persuasive, sophisticated, surprising, and thoughtful• Is very well written and organized• Is synthetic and interdisciplinary• Connects components in a seamless way• Exhibits mature, independent thinking• Has a point of view and a strong, confident, independent, and authoritative voice• Asks new questions or addresses an important question or problem• Clearly states the problem and why it is important• Displays a deep understanding of a massive amount of complicated literature• Exhibits command and authority over the material• Argument is focused, logical, rigorous, and sustained• Is theoretically sophisticated and shows a deep understanding of theory• Has a brilliant research design• Uses or develops new tools, methods, approaches, or types of analyses• Is thoroughly researched• Has rich data from multiple sources• Analysis is comprehensive, complete, sophisticated, and convincing• Results are significant• Conclusion ties the whole thing together• Is publishable in top-tier journals• Is of interest to a larger community and changes the way people think• Pushes the discipline's boundaries and opens new areas for research	<ul style="list-style-type: none">• Is solid• Is well written and organized• Has some original ideas, insight• Has a good question or problem that tends to be small and traditional• Is the next step in a research program (good normal science)• Shows understanding and mastery of the subject matter• Has a strong, comprehensive, and coherent argument• Includes well-executed research• Demonstrates technical competence• Uses appropriate (standard) theory, methods, and techniques• Obtains solid, expected results or answers• Misses opportunities to completely explore interesting issues and connections• Makes a modest contribution to the field but does not open it up

Acceptable

- Is workmanlike
- Demonstrates technical competence
- Shows the ability to do research
- Is not very original or significant
- Is not interesting, exciting, or surprising
- Displays little creativity, imagination, or insight
- Writing is pedestrian and plodding
- Has a weak structure and organization
- Is narrow in scope
- Has a question or problem that is not exciting—is often highly derivative or an extension of the adviser's work
- Displays a narrow understanding of the field
- Reviews the literature adequately—knows the literature but is not critical of it or does not discuss what is important
- Can sustain an argument, but the argument is not imaginative, complex, or convincing
- Demonstrates understanding of theory at a simple level, and theory is minimally to competently applied to the problem
- Uses standard methods
- Has an unsophisticated analysis—does not explore all possibilities and misses connections
- Has predictable results that are not exciting
- Makes a small contribution

Unacceptable

- Is poorly written
- Has spelling and grammatical errors
- Has a sloppy presentation
- Contains errors or mistakes
- Plagiarizes or deliberately misreads or misuses sources
- Does not understand basic concepts, processes, or conventions of the discipline
- Lacks careful thought
- Looks at a question or problem that is trivial, weak, unoriginal, or already solved
- Does not understand or misses relevant literature
- Has a weak, inconsistent, self-contradictory, unconvincing, or invalid argument
- Does not handle theory well, or theory is missing or wrong
- Relies on inappropriate or incorrect methods
- Has data that are flawed, wrong, false, fudged, or misinterpreted
- Has wrong, inappropriate, incoherent, or confused analysis
- Includes results that are obvious, already known, unexplained, or misinterpreted
- Has unsupported or exaggerated interpretation
- Does not make a contribution

Table 2. Some Dimensions of the Different Components of the Generic Dissertation

The following dimensions emerged from the analysis of the results of the study described in this article.

<p>Component 1: Introduction The introduction</p> <ul style="list-style-type: none"> • Includes a problem statement • Makes clear the research question to be addressed • Describes the motivation for the study • Describes the context in which the question arises • Summarizes the dissertation's findings • Discusses the importance of the findings • Provides a roadmap for readers <p>Component 2: Literature Review The review</p> <ul style="list-style-type: none"> • Is comprehensive and up to date • Shows a command of the literature • Contextualizes the problem • Includes a discussion of the literature that is selective, synthetic, analytical, and thematic <p>Component 3: Theory The theory that is applied or developed</p> <ul style="list-style-type: none"> • Is appropriate • Is logically interpreted • Is well understood • Aligns with the question at hand <p>In addition, the author shows comprehension of the theory's</p> <ul style="list-style-type: none"> • Strengths • Limitations 	<p>Component 4: Methods The methods applied or developed are</p> <ul style="list-style-type: none"> • Appropriate • Described in detail • In alignment with the question addressed and the theory used In addition, the author demonstrates • An understanding of the methods' advantages and disadvantages • How to use the methods <p>Component 5: Results or Analysis The analysis</p> <ul style="list-style-type: none"> • Is appropriate • Aligns with the question and hypotheses raised • Shows sophistication • Is iterative <p>In addition, the amount and quality of data or information is</p> <ul style="list-style-type: none"> • Sufficient • Well presented • Intelligently interpreted <p>The author also cogently expresses</p> <ul style="list-style-type: none"> • The insights gained from the study • The study's limitations <p>Component 6: Discussion or Conclusion The conclusion</p> <ul style="list-style-type: none"> • Summarizes the findings • Provides perspective on them • Refers back to the introduction • Ties everything together • Discusses the study's strengths and weaknesses • Discusses implications and applications for the discipline • Discusses future directions for research
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Thesis/Dissertation Evaluation

Student's Name _____ Student ID No.: V _____

Date: _____ Program: _____ Degree: _____

	Unacceptable (1)	Acceptable (2)	Excellent (3)	Outstanding (4)
Introduction – Provides a Problem Statement, Context, Strategy and Overall Findings				
Literature Review – Incorporates a Current Summary and Analysis of Literature				
Theory – Explains the Approach to Addressing the Problem				
Methods – Provides Adequate Description Related to Addressing Problem				
Results / Analysis – Appropriate Presentation of Data and Alignment with Stated Problem				
Discussion / Conclusion – Summarizes and Integrates Results; Discusses Implications and Future Direction				
Overall				

Comments (optional):