

Biology Graduate Student Handbook



GUIDELINES FOR THE MASTERS PROGRAM IN BIOLOGY
(THESIS OPTION)

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THESIS OPTION

INTRODUCTION

This compilation of procedures and advice is intended to provide both graduate students and faculty in Biology with guidelines for completion of the Masters Degree. The document was prepared, and will be periodically updated, by the Graduate Committee. In all instances, University policy will supercede policy in this handbook.

OBJECTIVES OF THE PROGRAM

The MS program in Biology at West Chester University is intended to a) provide an exposure to a broad range of concepts and techniques in modern biology at the graduate level, b) develop skills in a particular interest area, and c) provide an opportunity for experimental design and analysis related to research. The program is intended both for students seeking positions requiring Masters-level education and for students intending to enter doctoral programs. An important feature of the program in meeting objectives b and c above is the requirement of a thesis. Core course requirements are intended in part to provide additional exposure to other disciplines outside the thesis area (objective a).

Full-time students in the program normally take 3 courses per semester and finish the degree in approximately 2 years. Part-time students may take a maximum of 6 years to complete the degree, but must be able to perform the necessary research required by the thesis. Most graduate courses are offered at night to accommodate non-traditional or part-time students enrolled in the degree program, as well as to provide courses for non-degree students interested in professional growth.

GENERAL AND COURSE REQUIREMENTS

Prerequisites for admission and course requirements are determined by the Graduate Catalog in effect at the time of admission to the Biology Program. Three core courses are required for all students taking the thesis option. These are as follows: Directed Research I (BIO591), Thesis Research (BIO592), and Thesis (BIO610). The total credits allocated to these three courses is 9 credits. In addition, the student must take an additional 21 elective credits. Course may come from all from Group I courses, or alternatively some may come from Group II courses. For a complete listing of courses in each of these courses refer to the Appendix. It is the student's responsibility to make certain that all appropriate course work needed for the degree is taken.

Full time thesis students should take Thesis Proposal (BIO 591) in their second semester of study and complete it by the end of that semester. The Thesis Proposal may include the following: a thorough literature review in the area of the Thesis, and any preliminary experimental data the student has acquired for the Thesis. Successful completion of BIO 591 requires the approval of the Thesis Proposal by the student's Thesis Committee. The form shown in Appendix II must be submitted by the Thesis Advisor to the Graduate Coordinator. The student then receives a grade for the course from the Thesis Advisor.

Full time thesis students should take Thesis Research (BIO 592) in their third semester of study and complete it by the end of that semester. Once all of the experiments have been completed the student, in consultation with the thesis advisor, must setup a meeting of the student's Thesis Committee where the results of the experiments are discussed and reviewed. If all members of the Thesis Committee accept the results, then they must complete the form "Completion of Thesis research (BIO 592)" and have it signed by the Graduate Coordinator. Once all members of the Thesis Committee and the Graduate Coordinator have signed the form, the advisor should give the student a letter grade for the course.

The Thesis (BIO 610) should be taken in the final semester the student is enrolled (usually the fourth semester) and it is expected that the student defend his/her thesis orally at the conclusion of that semester. In order to maintain full-time status BIO 610 can be taken together with one other course, Directed Research II (BIO 593). The courses, Thesis Proposal, Thesis research and Thesis must be taken under the direct supervision of the Thesis Advisor with input from the student's Thesis Committee. Grading for the Thesis is again the responsibility of the Thesis Advisor.

Of the 30 credits required for the degree, a minimum of 24 must be in Biology. Six credits may be taken in an allied discipline with the approval of the student's Thesis Committee. Undergraduate prerequisites to the program, or to any of the graduate courses selected, cannot be applied to the degree. Because many elective courses are only offered during alternate years, it is important that the student develop an overall plan for taking preferred courses when they are available. The student should discuss the course schedule at the first meeting with his/her Thesis Committee. A proposed schedule of biology course offerings is provided in Appendix II.

COMPLETION OF PREREQUISITES TO FULL MATRICULATION

At the time of acceptance into the program, any deficiencies not completed prior to admission (2 semesters of General Chemistry, 2 semesters of Organic Chemistry, 1 semester of Calculus, 1 semester of Physics) are noted on the application by the Graduate Coordinator. The Thesis Committee reviews these deficiencies at its first meeting with the student (usually

held during the first semester of study), and may modify them at that time, providing justification and a recommended time table for completing all such prerequisites to the program. All deficiencies should be completed by the student in a timely manner, usually by the end of their first year. It is the student's responsibility to make certain that all deficiencies are rectified prior to graduation.

Taking the general GRE exam is also a requirement of the program. If not taken prior to the time of matriculation, the test should be taken within 1 semester after entry into the program. The minimum test score to remain in the program is 1,350.

APPLICATION FOR DEGREE CANDIDACY

Students should typically apply for Admission to Degree Candidacy during the second semester of their first year as a graduate student, once they have completed 12 to 15 credits of course work. This is done by completing the form "Application for Admission to Candidacy for the Degree" in the Appendix, and submitting it first to the Graduate Coordinator who then forwards it to the Office of Graduate Studies for approval by the Dean of Graduate Studies. A copy containing all signatures will then be forwarded to the Graduate Coordinator and he/she will place it into the departmental student's file.

The following are preconditions for Admission to Candidacy for the Thesis Option:

1. Removal of all deficiencies specified by the Thesis Committee at its first meeting. If not yet taken by the student, the GRE exam is considered to be a deficiency.
2. Completion of 12 - 15 semester hours at the Graduate level in Biology, with an overall average of at least 3.0.
3. Selection of a Thesis Advisor and Thesis Committee.
4. Satisfactory (passing) performance at a meeting of the Thesis Committee to evaluate the Thesis Proposal.

ROLE OF THE GRADUATE COORDINATOR

All questions concerning degree requirements should be directed to the Graduate Coordinator. Students seeking advice in the initial selection of courses, or requiring general guidance early in their graduate careers, should also consult with the Graduate Coordinator. The Graduate Coordinator is also responsible for keeping track of all student records, and all paperwork related to Admission to the Degree Program, Admission to Candidacy, and Completion of the Masters Degree as described further below.

ROLE OF THE THESIS ADVISOR

The student needs to choose a thesis advisor before being admitted to the program. The name of the advisor should be entered on the Supplemental Application form shown in Appendix II. To choose an advisor the student must make contact with a Biology faculty member and that faculty member must agree to act as his/her advisor prior to the student placing their name on the Supplemental Application form.

The principal responsibilities of the Thesis Advisor include:

1. guidance in the selection of course work
2. providing laboratory space and equipment necessary for conducting the thesis research.
3. advice in the choice of thesis topic, and of the research itself.
4. serving as Chair of the Thesis Committee.

THE THESIS COMMITTEE

The Thesis Committee should be chosen in consultation with the Thesis Advisor. Members of the Committee should be selected primarily for their interest in the student's area of research, and for their ability to provide advice or other assistance. A list of faculty research interests is provided in Appendix I of this Handbook. The committee shall meet formally at least 4 times. The first meeting must occur during the first semester of study or before the completion of 9 credits of graduate study, and is intended to map out recommended course work, to specify any deficiencies which must be made up by the student (reviewing deficiencies noted by the Graduate Coordinator at the time of admission into the Program) and to obtain a preliminary sense of the student's thesis interests. A Thesis Committee Composition and Recommendations form (Appendix II) is filled out at that meeting. The student meets with the committee a second time to discuss what he/she will do for the Thesis Proposal. A third meeting will be setup to evaluate the student's Thesis Proposal, and a fourth to participate in the Thesis Defense. In addition, all committee members are expected to attend the Thesis Seminar, normally presented by the student during the final semester of graduate work.

At other times it is the student's responsibility to keep all members of the Thesis Committee informed of progress on the thesis research. So doing can save considerable difficulty and discomfort at the Thesis Defense, and is a courtesy to people who have a genuine interest in the work underway.

The Thesis Committee must consist of at least 3 members of the Faculty in Biology, including the Thesis Advisor who serves as chair of the Committee. An additional committee member is sometimes chosen from outside the department, particularly if a portion of the research is done off campus. Committee members outside the department may also serve as co-chairs, if the other co-chair is a member of the Biology faculty.

The Graduate Coordinator is an ex officio member of all Thesis Committees. It is his/her responsibility to attend the Thesis Defense in a non-voting capacity. If the Coordinator cannot attend the thesis defense, then he/she will appoint another member of the Graduate Committee to attend on their behalf. It is also the responsibility of the Graduate Coordinator to keep records of the Thesis Committee Composition and Recommendations form, the Approval of the Thesis Proposal (Appendix II) and the Thesis Defense. The Graduate Coordinator may also serve as a regular, advising and voting member of the Thesis Committee when his/her area of expertise is needed.

GRADUATE ASSISTANTSHIPS

Graduate Assistantships will only be offered to full-time students. Deadline for applications for assistantships are April 15th. For student enrolling in the fall semester, and October 15th for students enrolling in the spring semester. Full-time students will usually be informed by the Graduate Coordinator at the time of matriculation into the graduate program of financial support provided by Graduate Assistantships available through the Biology Department. Assistantships are available at Level 1 and Level 2. Level 1 assistants are expected to devote 20 hours per week in service to the Biology Department and Level 2 assistants 30 hours of service. The service will be assigned by the Graduate Coordinator at the beginning of each semester, in response to requests for student help from particular faculty members, and normally consists of any of the following duties:

- 1) Tutoring of undergraduates.
- 2) Proctoring of exams as requested by the Graduate Coordinator or supervising faculty member.
- 3) Curation of preserved collections and maintenance of live materials within the Department.
- 4) Conducting office hours in the Biology Computer Room.

It is the responsibility of the Graduate Assistant to work out the details of the assignment(s) with the faculty member involved, normally during the first week of classes.

As part of the time allocated for the assistantship, a minimum of 10 hours per week should be devoted to progress toward the degree. The time is accountable to the student's Thesis Advisor and may involve any of the following:

- 1) Assistance in ongoing research of relevance to the student's own research interests.
- 2) Literature review and the development of the Thesis Proposal.
- 3) Thesis research and analysis.
- 4) Preparation of the Thesis Seminar and Written Thesis.

The Graduate Committee will evaluate the performance of each Graduate Assistant once each year, based upon input from the faculty member(s) directing the service to the Department and from the Thesis Advisor. The student will then be notified of:

- a) marginal or deficient performance and recommendation of "provisional standing" (The student must achieve satisfactory performance during the following semester or have his/her Assistantship revoked).
- b) unsatisfactory performance warranting immediate termination of the Assistantship.

Students receiving full time Graduate Assistantships are normally expected to take three courses (9 credits) per semester, and should plan to complete all requirements for their degree by the end of their second year. University support of graduate students through Graduate Assistantships are normally terminated after two academic years (four semesters). Additional support may be offered in some cases during the summer.

Additional funds may also be available for the support of graduate students through grants obtained by members of the faculty. Work performed under such grants may be unrelated to the student's intended dissertation topic, or may provide direct support of the thesis research. Time devoted to the work and pay received under grants are determined by the faculty member.

Financial support of the thesis research by the Biology Department is provided through the supply budget of the Thesis Advisor. It is therefore important for faculty who have graduate students working with them to include supplies for thesis research in their annual supply budget. Departmental funds for the support of graduate research may be augmented with grants obtained directly by the student through Sigma XI or other agencies.

PREPARATION OF THE THESIS PROPOSAL

The thesis topic should be selected in consultation with the Thesis Advisor, and should generally be a subject of mutual interest. Additional considerations in the choice of a topic are the following:

1. The research should be completed within a 1 - 2 year time frame. A clear description of the questions to be asked can save considerable frustration later with a topic which, once begun, is too open-ended to be addressed in a Masters Thesis.

2. The thesis must be accomplished with equipment and facilities available in the Biology department, or accessible through other departments or institutions.

3. The convenience and expense of the thesis project should be considered. Study sites, organisms of interest, and measurements to be taken should be chosen with concern given to the efficiency of data collection.

Perhaps the most important part of the research is therefore the Thesis Proposal, which should be prepared with considerable input from the Thesis Advisor, and will be scrutinized carefully by the Thesis Committee. The proposal should contain the following:

Literature Review

The Introduction is designed to orient the reader to the general subject, with citations of literature to be used in analyzing the research.

Introduction

This section should cover what the student will do specifically for their research thesis.

Questions and Hypotheses

These should be as specific as possible, and should be addressed directly in terms of the Methods proposed.

Pilot Study

A brief summary of preliminary data should be presented, if available.

Methods

Proposed methods should be described as a series of experiments, with inclusion of a) equipment to be used and b) a time schedule for completion of the work.

Analysis

The Analysis section should explain rather precisely how the experiments performed will be used to evaluate the Questions and Hypotheses.

Literature Cited

All references cited in the Thesis Proposal should be included.

APPROVAL OF THE PROPOSAL

Copies of the thesis proposal are first submitted to each member of the Thesis Committee, and a meeting of the committee to evaluate the proposal is then scheduled by the student. At that meeting the student will be expected to demonstrate both an understanding of the subject area addressed by the proposal, and the feasibility of the intended research.

At the end of the meeting the committee will:

- 1) approve the proposal as written,
- 2) approve the proposal with minor modifications to be made under the guidance of the Thesis Advisor,
- 3) require major modifications, to be evaluated at a second meeting of the Committee. When the Proposal has been approved, all members of the Thesis Committee will sign a form indicating Approval of the Thesis Proposal (Appendix II), to be attached to the proposal and kept in the student's file by the Graduate Coordinator.

NON-TRADITIONAL OPTIONS FOR GRADUATE WORK

Full-time graduate students are usually expected to take 3 courses each semester, and to complete their degrees in a two-year time interval. Students whose schedules do not permit full-time study may nonetheless enter the program and take course work as their time permits. Because of the intensive nature of the thesis research, the student will usually be urged to consider full-time work toward the degree once Admission to Candidacy has been achieved. Students must complete all requirements for the Masters Degree within 6 calendar years of entry into the Graduate Program.

Students employed by nearby companies or other institutions which provide facilities for research may elect to do all or a portion of their thesis research off campus. Off-campus research can be a very effective means of completing the Thesis. The student should take particular care, however, to describe in detail how the research will be accomplished in the Methods section of the Thesis Proposal, and should also inform the company/institution fully of the extent of the intended work. Periodic progress reports may be requested by the Thesis

Committee in some instances, and inclusion of an appropriate company/institution representative on the Thesis Committee is often advisable.

DEMONSTRATION OF SATISFACTORY PROGRESS TOWARD THE DEGREE

Full-time students, during their first two semesters, are expected to complete 4 prerequisites for candidacy: 1) 12 - 15 hours to course work, 2) accumulation of at least a 3.0 GPA in Biology, 3) selection of a Thesis Advisor and Thesis Committee, and 4) defense of a Thesis Proposal to the Thesis Committee (BIO 591). In cases where these criteria are not met by the end of the first year, the student may be asked to meet with the Graduate Committee and Thesis Advisor. At that meeting, the student's progress toward the MS degree will be reviewed, and specific, written recommendations may be made by the Graduate Committee for course work or research during the coming (third) semester. The letter would first be sent to the Graduate Dean for signature approval, then sent to the student. If, after the third semester, the student has still not fulfilled the prerequisites for candidacy, the Graduate Committee may decide to terminate the student from the degree program. This would involve a second letter, also sent via the Office of Graduate Studies for prior signature. Such a termination procedure is intended only for extreme cases, in which the student fails totally in working with any potentially suitable Thesis Advisor within the Department, or clearly shows inability to design or conduct independent research. Termination from the program on the above grounds could occur no earlier than the end of third semester, but at any time thereafter. Ethical misconduct with regard to the acquisition or presentation of data can likewise constitute grounds for dismissal from the program.

If at any time the student's grade point average falls below 3.0, the Graduate Office will place the student on probation, as described in the Graduate Catalog. The GPA must be raised to acceptable levels within the next nine credits of graduate work taken (usually the next semester) or the student will be dropped from the program. A student may also be dropped from the program by the Graduate Office without probation if the GPA falls below 2.0.

Part-time (non-traditional) students, because of the broad range of their outside commitments, may require several years to accomplish the criteria leading to candidacy. Such progress is quite acceptable, but it is the student's responsibility to ensure that she/he completes all requirements for the MS degree within the six-year period specified by the Graduate School. The Biology Department Graduate Committee will sometimes support a student originated request to extend the six year deadline for completion of the program, but

will do so only in cases where the student has shown substantial progress toward completion of the thesis.

CHANGES OF RESEARCH TOPIC

Graduate students frequently encounter unanticipated difficulties with their intended topic of research. If such difficulties require minor alterations of experimental design or research schedule, it is sufficient to simply inform the committee of the changes. If the changes are substantial, however, a new proposal may be called for by the Thesis Advisor. The new proposal must again be evaluated by the Thesis Committee, and, once approved, should replace the previous proposal in the files of the Graduate Coordinator.

SWITCHING FROM THE THESIS TO NON-THESIS OPTION

Changing from the thesis to the non-thesis option is possible but discouraged. If a change is requested it must be done before signing up for BIO 610 Thesis. A statement outlining reasons for the change must be submitted in writing to the Biology Graduate Committee. The decision whether or not to grant the change will be at the sole discretion of the Graduate Committee, and the decision of the committee shall be final.

A student who has switched programs must also reconstitute his/her Non-Thesis Evaluation Committee. The new committee must meet to plan remaining coursework, and must fill out a Non-Thesis Committee Composition and Recommendations Form. If a substantial change in the student's intent or focus is the reason for the change in curriculum, some graduate courses taken under the thesis program may not be considered as credit toward the non-thesis option.

CHANGES IN THE THESIS COMMITTEE

Occasionally, faculty retirement, sabbatical leaves and similar unanticipated events necessitate the dropping or replacement of a committee member. A member may also ask to be replaced in some instances for a variety of personal or academic reasons. Such replacements can be made at any time, but should be made with the full knowledge of the Thesis Advisor. Written notification of the change should then be made by the Thesis Advisor to the Graduate Coordinator.

Occasionally the Thesis Advisor may feel, for any number of reasons, that he or she can no longer serve as the Thesis Advisor for the student. In such cases, the Thesis Advisor should inform the Graduate Coordinator in writing. That letter should include the information that the Thesis Committee has been dissolved. It is then the student's responsibility to find a new

Thesis Advisor and form a new Thesis Committee, usually with the help of the Graduate Coordinator. The new committee should be formally reconstituted at a meeting with all members present. At that meeting a new Thesis Committee Composition and Recommendations form should be completed, and the committee should reevaluate the Thesis Proposal if appropriate.

EVENTS OF THE FINAL SEMESTER

It is the student's responsibility to inform the Graduate Office of an intent to graduate. Deadline dates for this generally fall within the first month of the semester in which the student plans to complete the Masters Degree. The student should consult the Graduate Catalog for the specific dates. The Graduate Coordinator and all Thesis Committee members should also be given an approximate timetable for completion of the thesis at the beginning of the final semester.

THE THESIS SEMINAR

A research seminar, of approximately 50 minutes duration, is required of all Masters students nearing completion of their thesis. The seminar should summarize major findings of the research, and is open to the public. The date, time and room in which the seminar will be presented must be advertised to the Biology faculty and any other interested persons at least one week in advance of the event. The seminar often helps to update the Thesis Committee upon work in progress, and should therefore be scheduled at a time when all committee members can be in attendance. Normally the Thesis Seminar directly precedes the Thesis Defense and is scheduled during the semester of intended graduation.

THE WRITTEN THESIS

The student should follow precisely the GUIDE TO THE PREPARATION OF THE MASTER'S THESES, which is available upon request from the Office of Graduate Studies. The first draft(s) of the thesis should be evaluated by the Thesis Advisor, and improved to the point where it may be submitted to other members of the Thesis Committee in preparation for the Thesis Defense (below). Once the thesis has been successfully defended to the satisfaction of the Thesis Committee, the student must submit a copy of the thesis to the Graduate Dean for final approval. The thesis is not formally approved until a decision has been made by the Graduate Dean.

THE THESIS DEFENSE

At the conclusion of the thesis research, each student must pass an oral Thesis Defense. The defense is usually moderated by the Thesis Advisor, and provides an opportunity for all members of the Thesis Committee to examine the student on the research itself, or on general knowledge areas of biology supportive of the thesis topic. The student is responsible for notifying all Committee members of the time and location of the Defense. A copy of the thesis, already reviewed by the Thesis Advisor, should be given to each Committee member at least one week in advance of the Defense. Committee members are then expected to bring written comments on the manuscript to the Defense, and may use the manuscript as a basis for oral questions related to the research.

At the conclusion of the Thesis Defense, the student will be asked to leave the room briefly while members of the Thesis Committee discuss their views of both the written thesis and oral examination. As with Approval of the Thesis Proposal, the Committee will decide upon one of three courses of action:

1. If only minor changes are suggested for improvement of the thesis, the Committee may decide to leave the responsibility for addressing these changes with the Thesis Advisor. When satisfied, the Thesis Advisor will sign the thesis, which is then taken to other members of the Committee for signatures.

2. If major changes are requested by one or more Committee Members, those changes must be addressed in consultation with both the Thesis Advisor and Committee members involved. Signatures are then secured as before.

3. If the majority of the Committee feels that either the thesis is inadequate or that the student showed a consistent lack of understanding of questions asked in the Oral Examination, specific recommendations for further research, course work or reading will be made by the Committee. Once these recommendations have been met, the student must schedule a second thesis defense. Failure of two such defenses normally results in the student's being dropped from the Graduate Program. In order for the thesis to be approved, all members of the thesis committee must agree that the thesis is acceptable.

Infrequently, substantial disagreement within the Thesis Committee may lead to the refusal of one or more Committee members to sign the thesis. In such cases, the Thesis Advisor must request formal review of the Thesis Defense by the Graduate Committee, which will then arbitrate all points of disagreement. Such instances are rare, and can be avoided if the student keeps all Committee members adequately informed of progress with the research.

Once the thesis has been accepted, the student or thesis advisor should obtain signatures of all Thesis Committee members on as many copies of the Signature Page as are intended for binding. One final copy of the thesis, together with all Signature Pages, is then given to the Graduate Coordinator who submits it to the Graduate Office to obtain the signature of the Dean of Graduate Studies. Once approved by the Graduate Office, the thesis is photocopied by the student and all copies are delivered to the library for binding (at the student's expense; turnaround time about 1 - 2 months). Four copies of the Thesis must be made for the University. Two copies will reside in the library, one with the Graduate Office and one copy with the Department of Biology.

RESEARCH FUNDING

Funding for both research and conference travel is available (but not guaranteed) from West Chester University. Funds for research are available from the Graduate Dean's Research Fund. Applications may be obtained from the Office of Graduate Studies. In addition, funding for travel to conferences is also available from the Graduate Student Association (GSA). Contact GSA for details.

Additional funding for Graduate Student research theses are available from the Department of Biology Graduate Student Research Award by filling out a standard form available from the Department office. The student must attach a proposal to this form and an itemized budget with justification for the items in the budget. The thesis advisor must also include a letter of support for the student. There is no application deadline for these awards hence applications will be reviewed by a faculty committee on a case by case basis.

COMPUTER ASSESSMENT

An additional requirement of graduation is that the student complete an on-line assessment of their experiences in the Biology graduate program. The assessment can be found at the web site <http://darwin.wcupa.edu/beneski>, under the link titled Web Interviewer. It is the responsibility of the Graduate Coordinator to check to make certain that the survey has been completed by the student before signing the Graduation Clearance Form.

EXEMPTION TO POLICY

At any time during the graduate process a student may request an exemption to any of the policies discussed above. The student must fill out the form "Petition for Exemption to Graduate Policy/Regulations" available from the Graduate Coordinator. This form must be

signed by the Biology Graduate Coordinator, the Departmental Chairperson and the Graduate Dean. Final decision will be that of the Graduate Dean.

GRIEVANCES

Grievances must always be handled at the lowest possible level. The student should first discuss the grievance with their thesis advisor, then if necessary with the Thesis Graduate Committee. If the grievance has not been resolved the student should see the Biology Graduate Coordinator and Department Chairperson. At this time if the grievance is unable to be resolved the grievance will be heard by the Graduate Dean. The decision of the Graduate Dean shall be accepted as final by the student.

CONTINUING REGISTRATION

Any student who decides not to take courses in any semester, but who still wishes to maintain active status with the University must apply for continuing registration (GSR 799). To enroll for continuing registration (GSR 799) a student needs to fill out a Graduate Course Scheduling Form obtainable from the Biology Graduate Coordinator, or contact the Graduate Office and ask to be enrolled in GSR 799. The student must do this for each semester that he/she wishes to maintain in active status.

NONTHESIS OPTION

INTRODUCTION

A non-thesis option is offered to students interested in the MS program in Biology. A complete list of required and elective courses is shown in the Appendix. The procedures and advice which follow are intended to provide both graduate students and faculty in Biology with guidelines for completion of the Masters Degree under the nonthesis option.

OBJECTIVES OF THE PROGRAM

The nonthesis option is intended primarily for part-time students in the MS program who cannot devote the time to, or would not benefit from, completion of a thesis. In lieu of the thesis, students take additional coursework (a total of 36 credits) and complete a research project of smaller scale (BIO 591). Students may take a maximum of 6 years to complete the degree. Most graduate courses are offered at night to accommodate non-traditional or part-time students enrolled in degree program, as well as to provide courses for non-degree students interested in professional growth.

GENERAL AND COURSE REQUIREMENTS

Prerequisites for admission and course requirements are determined by the Graduate Catalog in effect at the time of admission to the Biology Program. Seven core courses are required for all students. Research Techniques in the Biological Sciences I, II and III (BIO 513, 514 and 515) are intended to expose incoming students to a broad range of graduate faculty and departmental resources within the Biology Department. Experimental Design and Analysis (BIO 511) provides an introduction to the design and analysis of biological research. In addition, three Course Topics I, II and III, (BIO 535, 536 and 537) are required to be taken.

A Guided Study project is also completed by each non-thesis student by taking BIO 591 as an Independent Study under the direction of one of the Biology faculty (usually the Academic Advisor) as described below. BIO 591 culminates in a written exam which must be passed in order to obtain the degree.

Additional courses are selected with input from the Academic Advisor and Nonthesis Committee (below). Of the 36 credits required for the degree, all must be at the graduate level and at least 27 must be in Biology (including BIO 511, 513, 514, 535, 536, 537 and 591). Undergraduate prerequisites to the program, or to any of the graduate courses selected, cannot be applied to the degree. Likewise, BIO 592, 593 and 610 are reserved for

students in the Thesis Option, and may not be counted toward the degree. Because many elective courses are only offered during alternate years, it is important that the student meet early on in the program with his/her Nonthesis Committee to develop an overall plan for taking preferred courses when they are available. This is normally done at the first meeting between the student and the Nonthesis Committee. A proposed schedule of biology course offerings is provided in Appendix I.

THE GUIDED STUDY PROJECT

A research project, of approximately 1 semester duration, must be performed by all students taking the nonthesis option. Credit for the project is given as BIO 591 (3 credits), which must be added to the Master Schedule as an Independent Study under the direction of one of the Biology faculty. This administrative procedure is done by computer by the Biology department secretary. Usually the Academic Advisor directs the project, but in some cases the student may wish to take advantage of a research opportunity available under another faculty member. In such instances, the project director must be a member of the Nonthesis Committee, and can be added to the Committee if necessary.

The intent of the Guided Study Project is to provide exposure to individually conducted research, in an area of particular interest to the student. At the same time, the scope of the project is much less than for thesis students. Guided Study Projects usually contribute to research-in-progress by the faculty, but should be sufficiently discrete that the student's own accomplishments are clearly discernible.

As part of the requirements for BIO 591, the student must write a formal research paper and deliver a seminar to interested members of the Biology Department. These are evaluated by the faculty member directing the research, who then assigns a grade for the course. As concepts in the Guided Study Project are also reviewed by the Nonthesis Committee during the final seminar, the student should have completed the project before the seminar is scheduled.

COMPLETION OF PREREQUISITES TO FULL MATRICULATION

At the time of acceptance into the program, any deficiencies not completed prior to admission (2 semesters of General Chemistry, 2 semesters of Organic Chemistry, 1 semester of Calculus, 1 semester of Physics) are noted on the application by the Graduate Coordinator. The Nonthesis Committee reviews these deficiencies at its first meeting with the student, and may modify them at that time, providing justification and a recommended time table for completing all such prerequisites to the program.

Taking the general GRE exam is also a requirement of the program. If not taken prior to the time of matriculation, the test should be taken within 1 semester after entry into the program. A minimum score of 1,350 is required to stay in the program.

ROLE OF THE GRADUATE COORDINATOR

All questions concerning degree requirements should be directed to the Graduate Coordinator. Students seeking advice in the initial selection of courses, or requiring general guidance early in their graduate careers, should also consult with the Graduate Coordinator. The Graduate Coordinator is also responsible for keeping track of all student records, and all paperwork related to Admission to the Degree Program, Admission to Candidacy, and Completion of the Masters Degree as described further below.

ROLE OF THE ACADEMIC ADVISOR

An Academic Advisor is assigned to each student at the time of entry into the program. The principal responsibilities of the Academic Advisor include:

1. guidance in the selection of coursework to be taken, and scheduling of the first meeting of the committee.
2. providing laboratory space, equipment and advice as necessary for conducting the Guided Study project.
3. serving as Chair of the student's Nonthesis Committee.

ROLE OF THE NONTHESIS COMMITTEE

The Nonthesis Committee should be chosen in consultation with the Academic Advisor and must consist of the Advisor and two other members of the Biology Faculty. Each member of the committee must come from a different concentration (area) of Biology. The three concentrations are: Ecology, Evolution and Organismal Biology; Physiology, Development and Cell Biology; Molecular Genetics, Immunology and Microbiology. One of the Nonthesis Committee members, usually the Academic Advisor, also directs the Guided Study Project. A meeting of the Nonthesis Committee should be convened early enough to map out recommended coursework to be taken in subsequent semesters. Normally the Nonthesis Committee will meet again formally as a group only at the end of the student's program, to attend the Guided Study Project Seminar and to participate in the Oral Defense. The Academic Advisor, in contrast, is responsible for continued guidance of coursework, etc. throughout the student's program.

The Graduate Coordinator is an ex officio member of all Nonthesis Committees. It is his/her responsibility to attend the final seminar in a non-voting capacity, and to record the

results of the examination. The Graduate Coordinator may also serve as a regular, advising and voting member of the Nonthesis Committee in instances where his/her area of expertise is needed.

DEGREE CANDIDACY

Fully matriculated students should apply for Degree Candidacy once 12 to 15 credits of course work has been taken. Normally, degree candidacy is suggested before initiating the Guided Study Project, and is required of student's scheduling for the Comprehensive Oral Examination.

The following are preconditions for Admission to Candidacy for the Nonthesis option:

1. Removal of all deficiencies specified by the nonthesis Committee at its first meeting. If not yet taken by the student, the GRE exam is considered to be a deficiency.
2. Completion of 12 - 15 semester hours at the Graduate level in Biology, with an overall average of at least 3.0.
3. Selection of a Nonthesis Advisor and Nonthesis Committee.

THE INDEPENDENT STUDY SEMINAR

All students electing the nonthesis option must perform satisfactorily at an open seminar of the results of their independent study research (BIO 591), with all members of their Evaluation Committee in attendance. Normally this occurs during the final semester of the program, and is scheduled after at least 30 credits of coursework, including BIO 511, 513, 514, 535, 536 and 537, have been taken. The Guided Study Project (BIO 591) must be completed by the time the seminar is presented. The Graduate Coordinator also attends the seminar in an ex officio capacity. If the Graduate Coordinator cannot attend the seminar, he/she must appoint another member of the Graduate Committee to act on their behalf.

Following the seminar, the student will be asked to complete a take home written exam. Details of the exam are described in the following section.

THE COMPREHENSIVE WRITTEN EXAMINATION

The written examination will begin once all other requirements of graduation (i.e, all course work and the independent seminar) are completed. The examination will consist of three essay questions, one written by each of the three faculty members on the student's Nonthesis Committee. The exam is designed as a "take home" exercise, and the student is free to use resources at their disposal to answer each question. The three questions will cover each of the three concentration areas of Biology: Ecology, Evolution and Organismal

Biology; Physiology, Development and Cell Biology; Molecular Genetics, Immunology and Microbiology. Prior to the questions being given to the student, the Nonthesis Committee will meet and discuss each of the questions. The Academic Advisor will then give the first question to the student. That time period will be considered to be Day 1. From this time the student has 30 calendar days to complete all three questions. Once the student has completed the first question, the student will be given the second question as so on, until they are given the last question. All questions must be handed in person to the Academic Advisor. The faculty members that wrote the questions will grade their particular question. Before the student is informed of their grade the Nonthesis Committee will meet to discuss the outcome. The student will then be given the outcome by the Academic Advisor. The members of the Nonthesis Committee must complete the form "Outcome of Comprehensive Written Examination" and hand it to the Biology Graduate Coordinator before the student can graduate.

Possible grades for the examination are "pass", "no pass" or "fail". A "Pass" designation implies that no further comprehensive evaluation is necessary. If the student receives a grade of "no pass" further testing (as determined by the Nonthesis Committee) will be required to ensure adequate knowledge has been attained for granting of the degree. A grade of "fail" is reserved for rare instances where the quality of the answer is so low that it effectively removes the student from the graduate program with no provision for further testing.

SWITCHING FROM THE NON-THESIS TO THESIS OPTION

Changing from the non-thesis to the thesis option is possible. A change outlining reasons for the change must be submitted in writing to the Biology Graduate Committee. The decision whether or not to grant the change will be at the sole discretion of the Graduate Committee, and the decision of the committee decision shall be final.

A student who has switched programs must also reconstitute his/her Thesis Committee. The new committee must meet to plan remaining coursework, and must fill out a Thesis Committee Composition and Recommendations Form. If a substantial change in the student's intent or focus is the reason for the change in curriculum, some graduate courses taken under the nonthesis program (e.g. BIO 591) will have to be taken again for credit so as to be able to count toward the thesis option.

DEMONSTRATION OF SATISFACTORY PROGRESS TOWARD THE DEGREE

If at any time the student's grade point average falls below 3.0, the Graduate Office will place the student on probation, as described in the Graduate Catalog. The GPA must be raised to acceptable levels within the next nine credits of graduate work taken (usually the next semester) or the student will be dropped from the program. A student may also be dropped from the program by the Graduate Office without probation if the GPA falls below 2.0.

Part-time students, despite the often broad range of their outside commitments, must nonetheless ensure that they can complete the MS program within the University mandated six year limit. The Biology Department Graduate Committee will sometimes support a student originated request to extend the six year deadline for completion of the program, but will do so only in cases where the student has shown substantial progress toward completion of the degree.

CHANGES IN THE NONTHESIS COMMITTEE

Occasionally, faculty retirement, sabbatical leaves and similar unanticipated events necessitate the dropping or replacement of a committee member. A member may also ask to be replaced in some instances for a variety of personal or academic reasons. Such replacements can be made at any time, but should be made with the full knowledge of the Academic Advisor. Written notification of the change should then be made by the Academic Advisor to the Graduate Coordinator.

EVENTS OF THE FINAL SEMESTER

It is the student's responsibility to inform the Graduate Office of an intent to graduate. Deadline dates for this generally fall within the first month of the semester in which the student plans to complete the Masters Degree. The Graduate Coordinator should also be given an approximate timetable for completion of the degree at the beginning of the final semester.

CONTINUING REGISTRATION

Any student who decides not to take courses in any semester, but who still wishes to maintain active status with the University must apply for continuing registration (GSR 799). To enroll for continuing registration (GSR 799) a student needs to fill out a Graduate Course Scheduling Form obtainable from the Biology Graduate Coordinator, or simply contact the Graduate Office and ask to be enrolled in GSR 799. The student must do this for each semester that he/she wishes to maintain in active status.

NATURAL SCIENCE TRACK (NON-THESIS OPTION)

OBJECTIVES OF THE PROGRAM

The natural Science track is part of the non-thesis option and is restricted in its enrollment to those students currently holding a B.S. or B.A. degree and a teaching certificate in a science. The program is designed to enhance and expand the precollege teacher's academic preparation in the natural sciences. Each student's course of study is individually designed based on previous academic and pedagogical experiences and to meet the specific demands of the contemporary science educator. Because the Natural Science Track is part of the non-thesis program option, all rules and regulations pertaining to the non-thesis option listed previously in this booklet apply to this Track.

GENERAL AND COURSE REQUIREMENTS

The curriculum is based on 36 semester hours, and is divided into 4 areas of course work: foundation, earth systems, biology courses and electives. Following are the four course work areas and the requirements of each area.

1) Foundation 9 semester hours

BIO 540 (3)

BIO 541 (3)

BIO 591 (3)

To successfully complete BIO 591, the student must present the results of the project in an open seminar. In addition, during or immediately after the final semester of course work in the non thesis program, the student must pass a written comprehensive examination prepared by the student's advisory committee. Students who fail this examination will not receive their degree.

2) Earth systems 3 semester hours

Any biology core or experiential course beyond the required credit hour complement.

Suggested electives

ESS 502 Investigating Earth Materials

ESS 504 Historical Geology

ESS 530 Oceanography

ESS 531 Introduction to Paleontology

ESS 535 Introduction to Remote Sensing

ESS 543 Geomorphology ESS

ESS 570 Principles of Meteorology

Students should have completed an introductory geology course as a prerequisite for all courses on the list except ESS 570. Students who have not taken appropriate preparatory coursework could demonstrate proficiency by successful completion of an exam. Prior to signing up for Earth System courses, students must *obtain the approval of the graduate coordinator in Geology and Astronomy*. Other electives may be selected under guidance of advisor and approval of the student's committee.

3) Biology courses

Group I: Core Content 6 semester hours

Any 500 level biology course or 400 level courses that are acceptable for graduate students as per the WCU graduate catalog with the addition of Course Topics in Biology BIO 435-438.

BIO 531 (3), BIO 564 (3), BIO 565 (3), BIO 566 (3), BIO567 (3), BIO 568 (4),
BIO 570 (3), BIO 571 (3), BIO 575 (3), BIO 576 (3), BIO 584 (3), BIO 421 (4),
BIO 428 (3), BIO 435-38 (3), BIO 448 (3), BIO 452 (3), BIO 454 (3), BIO 456 (3),
BIO 457 (3), BIO 472 (3), BIO 473 (3), BIO 474 (4), BIO 485 (3).

Courses indicated as Group II courses (below) may not be used to fulfill Group I requirements.

Group II: Experiential Core 3 semester hours

Students must choose one of these courses to complete.

BIO 513 (3), BIO 514 (3), BIO 515 (3), BIO 580 (3)

Electives 15 semester hours

A max. of 6 s.h. may be selected from the Earth Systems category. A max. of 3 s.h. may be selected from School of Education offerings. As per University policy, a maximum of only 6 s.h. of 400 level courses may be counted toward the degree.

General Information and additional requirements

All students are required to produce a professional portfolio that is reflective of the student's performance and completed projects throughout the duration of his/her program. The professional portfolio will be presented by the candidate to his/her major professor as a graduation requirement. The student's major professor will approve or disapprove the portfolio.

All 400-level courses must be among those listed as acceptable for graduate for graduate students in the Graduate Catalog. With the consent of the advising committee, any student may also transfer in six credits of graduate level work from another university.

BIO 592, BIO 593 and BIO 610 may not be counted towards the 36 credits required for graduation in the non thesis option.

PROFESSIONAL GROWTH

INTRODUCTION

Unlike the thesis and non-thesis options of graduate study this option does not lead to the attainment of a Graduate Degree. However, in order to be admitted into the program, a student must meet the same academic criteria as that of a student enrolling into a program to attain a Graduate Degree, as laid out in the Graduate Catalog.

OBJECTIVES OF THE PROGRAM

This program is intended primarily for part-time, non-traditional students who wish to take courses with the sole purpose of personal enrichment, but who do not wish to obtain an MS degree. Students choosing this option are free to take as many (or few) courses as they wish in Biology. Unlike the other options there is no time limit on completing the program.

ROLE OF THE GRADUATE COORDINATOR

All questions concerning the Professional Growth option should be directed to the Graduate Coordinator. Students seeking advice in the initial selection of courses, or requiring general guidance early in this option, should also consult with the Graduate Coordinator. The Graduate Coordinator is also responsible for keeping track of all student records, and all paperwork related to the student.

ADMISSION PROCEDURE

Admission into the Professional Growth category is obtained by filling out the form "Application for Graduate Study : Professional Growth" found in Appendix II of this handbook. Official transcripts (except in the case of West Chester University graduates) must be attached to this form and all documents must be sent to the Office of Graduate Studies. The forms will then be sent to the Biology Graduate Coordinator and Graduate Dean for approval. The student does not have to submit GRE scores to be admitted into this category of study.

APPENDIX

BIOLOGY FACULTY RESEARCH INTERESTS

For a complete listing of research interests of the Biology faculty goto our website located on the [URL:http://www.wcupa.edu/_ACADEMICS/sch_cas.bio/CONCLIST](http://www.wcupa.edu/_ACADEMICS/sch_cas.bio/CONCLIST)
.HTM

MS. THESIS OPTION STUDENTS

Required Courses (9 credits)	Credits
BIO 591 Directed Research I	3
BIO 592 Thesis Research *	3
BIO 610 Thesis	3
Elective Credits (21 credits)	
<u>Group I **</u> (choose from 3 to 7 courses)	
BIO 511 Experimental Design and Analysis	3
BIO 513 Research Techniques I (Histology and Electron Microscopy)	3
BIO 514 Research Techniques II (Molecular Biology)	3
BIO 515 Computer Applications in Biological Research	3
BIO 535 Course Topics I (Ecology, Evolution, Organismal)	3
BIO 536 Course Topics II (Micro., Immunology, Molecular Genetics)	3
BIO 537 Course Topics III (Cell Biology, Physiology, Development)	3
<u>Group II</u> (choose up to 4 courses, but no more than 6 credits at the 400 level)	
BIO 530 Human Genetics	3
BIO 531 Molecular Genetics	3
BIO 564 Microbial Physiology	3
BIO 565 Immunology	3
BIO 566 Plant Physiology	3
BIO 567 Endocrinology	3
BIO 568 Comparative Vertebrate Physiology	4
BIO 570 Population Biology	3
BIO 571 Wetlands	3
BIO 575 Plant Communities	3
BIO 576 Limnology	3
BIO 580 Light Microscopy and the Living Cell	3
BIO 584 Epidemiology	3
BIO 421 Cell and Molecular Biology	4
BIO 428 Animal Histology	3
BIO 435 - 438 Course Topics in Biology	3
BIO 448 Animal Development	3
BIO 452 Parasitology	3
BIO 454 Mycology	3
BIO 456 Virology	3
BIO 457 Functional Animal Morphology	3
BIO 472 Aquatic Biology	3
BIO 473 Conservation Biology	3
BIO 474 Microbial Ecology	4
BIO 485 Systemic Botany	3

* A letter grade must be obtained for BIO 591 before the student can enrol in BIO 592.

MS. NONTHESIS OPTION STUDENTS

Required Courses (24 credits)	Credits
BIO 511 Experimental Design and Analysis	3
BIO 591 Directed Research I	3
Research Techniques	
BIO 513 Research Techniques I (Histology and Electron Microscopy)	3
BIO 514 Research Techniques II (Molecular Biology)	3
BIO 515 Computer Applications in Biological Research	3
Course Topics	
BIO 535 Course Topics I (Ecology, Evolution, Organismal)	3
BIO 536 Course Topics II (Micro., Immunology, Molecular Genetics)	3
BIO 537 Course Topics III (Cell Biology, Physiology, Development)	3
Elective Credits (12 credits)	
<u>Students may choose any of the following courses. No more than 6 credit may be taken at the undergraduate level.</u>	
BIO 531 Molecular Genetics	3
BIO 564 Microbial Physiology	3
BIO 565 Immunology	3
BIO 566 Plant Physiology	3
BIO 567 Endocrinology	3
BIO 568 Comparative Vertebrate Physiology	4
BIO 570 Population Biology	3
BIO 571 Wetlands	3
BIO 575 Plant Communities	3
BIO 576 Limnology	3
BIO 580 Light Microscopy and the Living Cell	3
BIO 584 Epidemiology	3
BIO 421 Cell and Molecular Biology	4
BIO 428 Animal Histology	3
BIO 435 - 438 Course Topics in Biology	3
BIO 448 Animal Development	3
BIO 452 Parasitology	3
BIO 454 Mycology	3
BIO 456 Virology	3
BIO 457 Functional Animal Morphology	3
BIO 472 Aquatic Biology	3
BIO 473 Conservation Biology	3
BIO 474 Microbial Ecology	4
BIO 485 Systemic Botany	3

PROPOSED GRADUATE COURSE SCHEDULE

COURSE TITLE AND NO.	ODD YR.	EVEN YR.	EVEN YR.	ODD YR.
	FALL	SPRING	FALL	SPRING
Exp. Design & Anal. 511		x		x
Res. Techn. I 513	x		x	
Res. Techn. II 514		x		x
Res. Techn. III 515	x		x	
Course Topics I 535	Offered in a regular rotations			
Course Topics II 536	Offered in a regular rotations			
Course Topics III 537	Offered in a regular rotations			
Conceptual Sci. I 540	x		x	
Conceptual Sci. II 541		x		x
Cell. & Mol. Biology 421	x		x	
Animal Histology 428	x		x	
Animal Development 448		x		x
Parasitology 452		x		
Mycology 454	x		x	
Virology 456		x		x
Func. Anim. Morph. 457				x
Aquatic Biology 472	x			
Conservation Biology 473				x
Microbial Ecology 474	x			
Systematic Botany 485		x		
Human Genetics 530	x		x	
Molecular Genetics 531	x		x	
Des., Anal. & Adapt. Conc. Sci. I 540	x		x	
Des., Anal. & Adapt. Conc. Sci. II 541		x		x
Animal Morphology 557				x
Microbial Physiology 564		x		x
Immunology 565	x		x	
Plant Physiology 566				x
Endocrinology 567				x

Comp. Vert. Phys.	568		x		x
Population Biology	570	x		x	
Wetlands	571	Summer of odd years			
COURSE TITLE AND NO.		ODD YR.	EVEN YR.	EVEN YR.	ODD YR.
		FALL	SPRING	FALL	SPRING
Plant Communities	575				x
Limnology	576			x	
Light Microscopy	580		x		x
Epidemiology	584	x			

THESIS STUDENTS*

Year 1, semester 1
Bio XXX
Bio XXX
Bio XXX

Year 1, semester 2
Bio 591
Bio XXX
Bio XXX

Year 2, semester 1
Bio 592
Bio XXX
Bio XXX

Year 2, semester 2
Bio 593
Bio 610

TOTAL 30 credit hours

NON THESIS STUDENTS

Year 1, semester 1
Bio XXX
Bio XXX
Bio XXX

Year 1, semester 2
Bio XXX
Bio XXX
Bio XXX

Year 2, semester 1
Bio XXX
Bio XXX
Bio XXX

Year 2, semester 2
Bio 591
Bio XXX
BIO XXX

36 credit hours

* Thesis student who transfer either 3 or 6 credits should sign up for BIO 591 in their first semester of study, BIO 592 in their second semester of study and BIO 610 in their third semester. Note that as per the Biology Graduate Handbook, the student must obtain a letter grade from each of these course BEFORE they are allowed to schedule for the next class in the sequence.

Thesis student who are also on a University assistantship are *strongly* advised to follow the recommended schedule above. Failure to do so might result in them having to take additional courses (over and above those required for the degree) to maintain their assistantship.

Notes

Courses listed as BIO XXX above should be selected from Group I and II courses as outlined in the Biology Graduate Handbook.



Department of Biology
West Chester University
West Chester, Pennsylvania 19383-2130

610-436-2538
fax: 610-436-2183

SUPPLEMENTARY APPLICATION FORM MASTERS DEGREE PROGRAM IN BIOLOGY

The Biology Department offers two alternative programs leading towards the MS Biology degree, as outlined in the attached description. The 30 credit Thesis Option offers the opportunity to specialize in some area of personal interest through the completion of the thesis, and involves close supervision by a Thesis Advisor. The 36 credit Non-thesis Option requires a greater diversity of coursework, but still provides the opportunity to explore a specific problem in the guided study project. Both options are described in the Graduate Student Handbook, available to all matriculated students.

Because of the limited space available, students applying to the program must decide upon an intended advisor before they will be considered for admission. Please use the attached description to select an advisor, and contact that person directly to ensure that there will be space available for you. Switching advisors is possible, but may result in prolonging your program. Switching between the two program options is also possible, but again, may require increased time and credits to graduate.

This form must be submit to the Biology graduate Coordinator no later than the end of the first semester of study for *all* students.

NAME: _____

ADDRESS: _____

PHONE: (H) _____ (W) _____

_____ has agreed to serve as my advisor.

I wish to matriculate under the Thesis/Non-Thesis option. (Circle choice)

I expect to be a full time/part time student. (Circle choice)

Please use the remaining space to indicate any special considerations not mentioned in the standard Application for Graduate Study (intention to transfer credits from another institution, ability to complete a thesis at your current employment, etc).

THESIS COMMITTEE COMPOSITION AND RECOMMENDATIONS

Student: _____

Date: _____

Thesis committee signatures*

Chair: _____

Member: _____

Member: _____

Member: _____

Deficiencies/prerequisites to full matriculation (specify and include expected completion date).

I. CORE PROGRAM (9 credits)

Course	Credits	Sem/Yr
BIO 591	_____	_____
BIO 592	_____	_____
BIO 610	_____	_____

II. ELECTIVES (21 credits)

Course	Credits	Sem/Yr
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Copies of this form must be kept by the Thesis advisor, Graduate Coordinator (gets the original) and the student.

* The Chair (or Chairs) and at least 2 other committee members must be from the Biology Department.

With the approval of the Graduate Committee, up to 6 credits of graduate coursework may be transferred in from another University. With the approval of the Graduate Committee, up to 6 credits of graduate coursework may be taken in another department at WCU. With the approval of the Graduate Committee, up to 6 credits of electives may be taken in 400 level BIOLOGY courses at WCU.

BIO 593 may not be counted toward credits required for graduation.

APPROVAL OF THESIS PROPOSAL

Student name:

Date:

The above referenced student has presented a thesis proposal to his/her committee entitled:

This proposal has been accepted by the committee members whose signatures appear below.

Thesis advisor

Committee member

Committee member

Committee member

Committee member

Committee member

COMPLETION OF THESIS RESEARCH (BIO 592)

This form must be completed and signed by all members of the thesis student's committee BEFORE a grade is recorded with the Office of the Registrar.

Thesis Topic

Has the student successfully completed the experiments necessary to write up the thesis?

_____ YES

_____ NO

Signatures of the thesis committee are required.

Primary advisor

Date: _____

Committee member

Date: _____

Committee member

Date: _____

Committee member

Date: _____

Graduate Coordinator

OUTCOME OF THESIS DEFENSE

The following form documents what transpired at the Thesis Defense of a student in the M.S. Biology program. It is completed by the thesis advisor and is kept in the student's file with the graduate coordinator, with copies to the student and the thesis advisor.

Name of student: _____

Date of defense: _____

Thesis title: _____

Thesis committee members in attendance.

The Thesis Defense normally results in one of the following three general outcomes, outlined below.

1. Minor revisions of the Thesis may be required. In such cases, the thesis advisor oversees the requested changes, and other committee members simply sign the thesis when it is complete.
2. Major revisions of the Thesis may be required by one or more committee members. In such cases, the committee members normally withhold signatures until they have personally seen the revisions and find them acceptable.
3. If the thesis committee feels that either the thesis is inadequate, or that the student displayed a consistent lack of understanding of the subject matter involved, specific suggestions for further coursework, readings or research are made. Once these have been completed, a second Thesis Defense is scheduled.

Please note below the outcome of the Defense, including any specific requirements which must be met by the student, and indicating a probable date of completion of the Thesis.

(Signature of the thesis advisor/Date)

Office of graduate Studies and Extended Education
West Chester University
West Chester, Pennsylvania 19383
436-2943

APPLICATION FOR ADMISSION TO CANDIDACY FOR THE DEGREE

(must be filed in the Graduate Studies and Extended Education
Office after completion of 12 – 15 credits)

NAME: _____ DATE: _____

ADDRESS: _____

TELEPHONE (HOME): _____ BUSINESS: _____

SOCIAL SECURITY: _____ CURRICULUM: _____

DEGREE: MA _____ MED _____ MS _____ MBA _____ MSA _____ MSN _____

Total Number of Course Hours Completed: _____

**THE FOLLOWING INFORMATION IS TO BE FILLED IN BY YOUR
DEPARTMENTAL ADVISOR.**

YES

NO

1. Has this student received a grade for 12 –15 credits?
2. Has she/he met all of the requirements for full matriculation?
3. has she/he maintained a minimum cumulative GPA of 3.0?
4. Has she/he met all departmental requirements for Candidacy?

OFFICE USE ONLY

I certify that I have reviewed the academic credentials of the applicant and recommend that
candidacy be:

APPROVED: _____ DENIED: ___ REASON FOR DENIAL: _____

SIGNATURE OF DEPARTMENT CHAIRPERSON OR COORDINATOR DATE

ACTION BY GRADUATE OFFICE: APPROVED: _____ DENIED: _____

DEAN OF GRADUATE STUDIES AND EXTENDED EDUCATION DATE

**NON-THESIS OPTION
COMMITTEE COMPOSITION AND RECOMMENDATIONS**

Student: _____ Date: _____

Evaluation Committee Signatures**

Chair: _____

Member: _____

Member: _____

Member: _____

** The Chair (or Co-Chair) and at least 2 other committee members must be from the Biology Department. The committee must consist of one faculty member from each of the three broad disciplines as defined by the Biology Department.

Deficiencies/Prerequisites to Full Matriculation (Specify and include expected completion date. Continue on back of page if necessary.)

I. CORE PROGRAM 24 credits

<u>Course</u>	<u>Credits</u>	<u>Sem/Year</u>	<u>Grade</u>
BIO 511	3	_____	_____
BIO 513	3	_____	_____
BIO 514	3	_____	_____
BIO 515	3	_____	_____
BIO 535	3	_____	_____
BIO 536	3	_____	_____
BIO 537	3	_____	_____
BIO 591	3	_____	_____

II. ELECTIVES***

12 credits

<u>Course</u>	<u>Credits</u>	<u>Sem/Year</u>	<u>Grade</u>	
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____

Copies of this form should be kept by the Student's Advisor, the Graduate Coordinator, and the student.

*** With Committee approval, up to 6 credits of graduate coursework may be transferred in from another university. With prior Committee approval, up to 9 credits of graduate coursework may be taken in another department at WCU. With prior Committee approval, up to 6 credits of electives may be taken in 400 level BIOLOGY courses at WCU.

BIO 592, 593, and 610 may not be counted towards the 36 credits required for graduation.

Guided Study in Biology

BIO 591 - 3 credits

This course is available only to Graduate Students who have selected the Non-Thesis Option for the MS degree in Biology. This course should not be taken unless the student has completed all of the Research Techniques courses and Course Topics. The course is an independent study taken with one of the faculty members in Biology (normally the Chair of the Non-Thesis Evaluation Committee). Completion of the course entails A) a written paper submitted to the supervising faculty member, and B) an oral presentation open to interested faculty and students as part of the Biology Department Seminar Series. When both requirements are met, a grade for the course is assigned by the supervising faculty member.

A short (ca. 1 page) proposal, describing the purpose and methods of the work to be performed, must be submitted to the supervising faculty member, and receive his/her signature no later than the first week of the semester in which BIO 591 is taken.

Student name: _____

Student number: _____

Project title: _____

Supervising faculty member: _____

Faculty member signature/date: _____

Graduate Coordinator signature/date: _____

Project Summary (use additional pages as necessary):

CHECKLIST FOR SUCCESSFUL COMPLETION OF BIO 591 FOR NONTHESIS STUDENTS

In order to obtain a grade for BIO 591, the student must complete each of the following items on the checklist.

	YES	NO
1. Has the student completed the nonthesis independent project?	_____	_____
2. Has the student presented a seminar to the Biology Department?	_____	_____
3. Has the student received a passing grade in each of three questions on the comprehensive exam?	_____	_____
4. Has the student completed the exit interview for Biology on the internet?	_____	_____

Signature of the nonthesis committee are required.

Primary advisor

Date: _____

Committee member

Date: _____

Committee member

Date: _____

Committee member

Date: _____

Graduate Coordinator

Outcome of Comprehensive Written Exam

This is a summary of the results of the comprehensive written examination required of all non-thesis students. Answers may be rated PASS, NO PASS (Requires further testing of the candidate to ensure adequate knowledge for granting of the degree), or FAIL (Reserved for rare instances where the quality of the answer is so low that it effectively removes the student from the graduate program with no provision for further testing).

STUDENT _____

DATE EXAM COMPLETED _____

Organismal/Ecology/Evolution

Faculty member's signature _____

Rating of answer _____

Question Answered was:

Microbiology/Immunology/Molecular Genetics

Faculty member's signature _____

Rating of answer _____

Question Answered was:

Cell Biology/Physiology/Growth & Development

Faculty member's signature _____

Rating of answer _____

Question Answered was:



Office of Graduate Studies and Extended Education
 West Chester University
 West Chester, PA 19383 -2600

e-mail: gradstudy@wcupa.edu

610-436-2943

APPLICATION FOR GRADUATE STUDY: Professional Growth

(Please print or type)

Last Name _____ First Name _____ MI _____

Date _____

Other name under which credentials may be listed _____

Program applying to _____ Social Security # _____

Gender _____

Optional – ID purposes only

female/male

Mailing address

(street)/country _____

City _____ State _____ (see code) Zip _____ County (see code) _____

Telephone (home) _____ (work) _____ Date of birth _____

area code

area code

E-mail address _____ Fax number (include area code) _____

Ethnic identity (optional)

_____ African American

_____ Asian or Pacific Islander

_____ Caucasian

_____ Native American

_____ Latino/Hispanic

_____ Other (specify)

Country of Citizenship _____

In what state do you claim legal residence? _____

County _____

List in chronological order all the undergraduate and graduate institutions attended, including West Chester University (most recent first).

Institution	Degrees/Date	Major	Address (City and State)	Dates

Attach official transcripts in sealed envelope from the appropriate Registrar’s Office, if not a West Chester University graduate.

List your overall undergraduate GPA _____ and GPA in your major _____ (completed on basis of all transcripts)

I hereby certify that I have personally completed this form and that the information is complete and accurate to the best of my knowledge. I understand that any falsification may result in cancellation of registration or dismissal. I further understand that the requirements of my program will be determined by the policies stated in the graduate catalog current at the time I am admitted to professional growth.

Signature _____

Date _____

Department/Program Recommendation

_____ Admit _____ Reject

Reason for rejection:

Signature _____

Date _____

Department Chair or Graduate Coordinator
Action by Dean of Graduate Studies

_____ Approve as recommended
_____ Not approved as recommended

Reason for nonapproval:

Signature of Graduate Dean _____

Date _____

10/00