GRADUATE HANDBOOK FOR THE INTEGRATED BIOLOGY PROGRAM
Guide to University and Department regulations, practices, and policies that have an impact on graduate students in the Integrated Biology (iBio) graduate program. Revised July 2025 (GAC, DGS)

I. FIRST-YEAR REQUIREMENTS: GETTING THROUGH THE FIRST YEAR

A. Advisors

1. Ph.D. Candidates

The Associate Chair for Graduate Education/Director of Graduate Studies (DGS) serves as the primary advisor for entering Ph.D. students until they affiliate with a mentor. Students should consult the DGS to choose courses to meet specific departmental requirements, to discuss rotations (see below) and areas of research interest, and outline the nature of courses and programs available. They may also help with the choice of a permanent advisor for thesis research, or with any academic concern. Students entering directly into a laboratory are not assigned a temporary advisor. All students should feel free to ask the Graduate Program Coordinator, the Graduate Affairs Committee (GAC) or the Departmental Executive Officer (DEO/Chair) for advice at any time.

2. M.S. Candidates

Entering M.S. students must choose a permanent research sponsor prior to admission. This individual is the primary advisor throughout the student's time in the M.S. program.

B. General academic requirements for iBio students (M.S. and Ph.D. students)

1. Graduate College Requirements

The Manual of Rules and Regulations of the Graduate College may be found at the graduate college website. This source specifies in detail the Graduate College's general degree requirements and provides guidelines for preparation of theses,
deadlines for applications for degrees, and requirements for submission of theses (first and final drafts). All degree-granting departments and programs must adhere to the requirements of the Graduate College as *minimum* requirements. Departmental requirements may be different as long as these requirements are more stringent or extensive.

2. GPA Requirements

Requirements for Ph.D. and M.S. candidates. A cumulative grade point average (GPA) of at least **3.0 in formal course work** must be maintained by Ph.D. and thesis M.S. candidates, and a GPA of 2.75 must be maintained by non-thesis M.S. candidates. Courses numbered below 3000 and courses not related to the graduate degree are not counted in calculation of the Departmental GPA. Grades for research or independent study are graded S/U and are not used in establishing the Departmental GPA. With the exception of some seminar courses (e.g., BIOL:6188, BIOL:6299), when a graded course is repeated for credit, <u>both the original grade and the second grade are included in calculating the GPA.</u>

<u>Academic probation</u>

If the Departmental cumulative GPA falls below 3.0, Ph.D. and thesis M.S. candidates are placed on academic probation. Students on academic probation are then required to earn at least a 3.0 GPA in formal course work in the following semester (in the academic year), and to restore the *cumulative* Departmental GPA to 3.0 or above by the end of the second semester following the decline. Failure to restore the GPA to the required level means the student can no longer be a degree candidate in the department.

For non-thesis M.S. students, if the Departmental cumulative GPA falls below 2.75, candidates are required to earn at least a 2.75 in formal course work in the following semester and to restore the cumulative Departmental GPA to at least 2.75 by the end of the second semester following

the decline. Failure to restore the GPA to the required level means the student can no longer be a degree candidate in the department.

Important Notes: The Departmental requirements for minimum GPA/academic probation differ from those of the Graduate College:

(1) The department does not allow grades for research or independent study to count in the GPA, although this is allowed by the Graduate College.

(2) The Graduate College will place students on academic probation if the student falls below the required minimum (3.0 or 2.75 GPA) after completion of nine semester hours (9 s.h.) of graded graduate work. Following the decline below the minimum, the student will have an additional nine hours to raise the cumulative GPA above the minimum. iBio students may be placed on probation in the first semester of sub-standard GPA and have another semester to restore satisfactory cumulative GPA.

(3) The Graduate College requires only a 2.75 GPA for M.S. students but the Department requires 3.0 GPA for thesis M.S. candidates.

3. Semester Hour (s.h.) Requirements

All pre-comps students are expected to maintain full-time status by registering for at least **nine s.h.** during each semester of the academic year but 12-15 s.h. is preferred. Students should register during the early registration period (early-mid November for Spring Semester, and April-June for Fall Semester.) to allow enrollment to be accurately calculated by the Graduate College. If dropping a course is necessary, students should endeavor to stay at at least 9 s.h. per Grad College policies on tuition.

Summer registration is required only for students supported by Graduate College Fellowships and students who intend to graduate during the summer session. In some cases, graduate students who are very close to meeting the semester hour requirement for their degree (30 s.h. for the M.S. w/ thesis or 72 for the Ph.D.) may register only for the number of semester hours needed to reach the required total. In such cases a “short hours” form must be submitted to the Graduate College.

4. Normal Progress to the Degree

Normal progress toward the degree includes: a) timely enrollment in required courses, b) successful completion of the required coursework and comprehensive examination, c) steady progress in research and in meeting the expectations of the thesis lab, and d) timely completion of the thesis requirements for the Ph.D.

C. Curriculum

1. Deficiencies on Admission

Cognate Requirements for the PhD program. Students who have not completed the following requirements should complete them *for a letter grade by the close of summer of the 1st year*

- One year of college physics, or clearly identified equivalent approved by the Graduate Affairs Committee (GAC).
- One year of organic chemistry (or one semester each of organic chemistry and biochemistry).
- One semester of calculus (Calculus I; e.g. MATH:1850, or MATH:1460 Calculus for the Biological Sciences in the University of Iowa catalog).

• One semester of fundamental genetics (e.g., BIOL:2512).

Masters students: Masters students affiliate directly with a lab/advisor and therefore any prerequisite course requirements are established by **mutual agreement with the advisor, but must include at least genetics and one more of the above courses.** However, should an M.S. student wish to advance to the Ph.D. program, any remaining deficiencies in the above requirements would need to be satisfied.

Biology Requirements: Entering PhD and MS students will typically have 20 s.h. of coursework in biology, including genetics. Students with deficiencies in biology background may be required to take courses specified by the Graduate Recruiting and Admissions Committee (GRAC) in consultation with the DGS as a condition for admission.

2. Specific courses for the first two years (M.S. and Ph.D.)

Research (BIOL:6199). During Fall rotations first-year students should enroll in at least 3 s.h. of Research: Biology, BIOL:6199.

COSMOS Seminar I (BIOL:6298). In the first fall semester, 1st-year students enroll in COSMOS I (Concepts, Models, and Systems in Biology: Monday Student Seminar) for 1 s.h., which requires attendance at the Monday student seminar series and the Friday afternoon guest seminar series.

All continuing iBio students (Ph.D. and M.S.) must enroll in BIOL:6298 each Fall semester, and must participate by giving research seminars as scheduled.

Critical Readings of Biological Research: Concepts, Methods and Interpretation (BIOL: 5312). All 1st-year graduate students are required to enroll in the Fall semester CBR course for 2 s.h. A grade of B or better must be earned. A lower grade may require re-taking the course. A second grade lower than a B will result in dismissal from the program.

COSMOS Seminar II (BIOL:6299). In the spring semester, most 1st-year students are expected to enroll in BIOL:6299 (COSMOS Seminar II) for 2 s.h., and engage in a vertically integrated critical analysis of a single topic (new each year) over many levels of basic biology (from molecular to ecological). Students may retake BIOL:6299 up to 3 times over subsequent years of the curriculum.

Fundamental Genetics (BIOL:5412)

A 3 s.h. graduate section of the department's comprehensive undergraduate Genetics course should be taken in the first year if the undergraduate Genetics requirement is not met. Students will be exempt based on a strong performance in an undergraduate fundamental genetics course taken at a major research university within the preceding three years.

Students who qualify for an exemption but nonetheless feel like a refresher in Genetics would be advantageous may also take this course. BIOL:5412 registration is reserved for graduate students. This course counts towards the advanced lecture requirement for all Ph.D. and thesis M.S. students.

Students who are excused from BIOL:5412 are **still required to take Readings in Genetics (BIOL:5512)** in their second year (see below).

Principles of Scholarly Integrity: Bio (BIOL:7270). Incoming students are required to receive training in the responsible conduct of research, as mandated by national funding agencies. This course consists of an online component and a series of lectures/discussions during orientation and must be refreshed every 4 years. This course is co-taught with faculty

from Psychology and Brain Sciences.

Practicum: College Teaching for Biol TAs (BIOL:5110). Students teaching BIOL:1411 or 1412 are required to take this 2 s.h. class. The class consists of weekly laboratory preparation meetings including review of materials, learning new techniques, and sharing best practices. This course may be taken only twice for credit.

Readings in Genetics (BIOL:5512). 2nd-year graduate students are required to enroll in the Fall semester Readings in Genetics course for 2 s.h. A grade of B or better must be earned; a lower grade requires re-taking the course. A second grade lower than a B will result in dismissal from the program.

Seminar: Writing in Natural Sciences (WINS) (BIOL:6188). This 2 s.h. course is required of all 2nd year iBio students (Ph.D. and M.S. w/thesis) and will focus on enhancing student writing and critiquing skills. Inspired by the Iowa Writer's Workshop, students will submit original writing for critique by the class. iBio Ph.D. students will typically work on their research proposals for the comprehensive exam and M.S. students will work on aspects of their M.S. thesis. Students retaking WINS should plan to work on a different writing project, such as an original paper, grant application or review article.

3. Other Course Requirements to note

Seminar Courses. During the first two years in residence, all **iBio** students are required to take at least two 2-s.h. seminar courses with a significant writing and/or oral presentation component; these are typically COSMOS Seminar II and WINS. M.S. students are required to take one additional 2-s.h. seminar course before graduation which can include BIOL:5312 (CBR). Following comprehensive examinations, Ph.D. students must take at least two additional 2-s.h. seminar courses (not including BIOL:5312 (CBR)). Seminar courses from other departments may be approved by the Graduate Affairs Committee in consultation with the faculty advisor to satisfy the requirement.

Advanced Lecture Courses. During the first two years in residence, all graduate students are required to take at least two advanced 3-4 s.h. **biology-based lecture** courses. These courses must be 3000-level or higher and must be designed primarily for seniors and graduate students. A list of some possible courses is available here.

Data Informatics Courses. During the first two years, students will take at least one course (3+ s.h.) in large-scale data informatics, including bioinformatics, advanced statistics or other informatics with some programming component. A list of some possible courses may be found in here.

Free Elective. One additional elective is also required and can be fulfilled with either a third advanced lecture course or a second data analysis course.

D. Research Rotation Program (Ph.D. program only)

1. Description of the Program

Research rotations provide newly admitted Ph.D. students the opportunity to gain experience in three research labs during their first semester in residence, thereby providing them with information necessary to choose a permanent advisor for thesis research. Students admitted directly into a laboratory are exempt from rotations.

- Students choose the first rotation lab by **July 15th** of the summer before the 1st semester.

- Graduate credit is obtained for rotations by enrolling in Research: Biology (BIOL:6199) maximum 3 s.h. the first semester).

- During each rotation, the student is an active participant in the host laboratory.

- The Graduate Affairs Committee (GAC) oversees the program.

- Each rotation period lasts 6 calendar weeks and is followed by research presentations on the rotation research. These are evaluated by the GAC, who provides the students with feedback and encouragement.

- Students select a research mentor/advisor after the third rotation; no later than mid-December. Those who have not found a permanent faculty advisor after three rotations may request a fourth rotation to take place during the winter break of the first year. Approval of this option is relatively rare.

2. Mechanism of Scheduling Rotations and Laboratory Affiliation

Faculty accepting rotation students. During the summer prior to rotations faculty are surveyed to determine the number of students they will accept and the number they can ultimately accommodate in their laboratory. Students are notified which faculty are accepting rotation students.

First rotation selection. Based on their interview visit and reading of various faculty websites and publications, students should contact faculty and determine availability for the first rotation. Reprints of representative publications of faculty in whose research a student is interested can be obtained by requesting them from the faculty members, or accessing them through journal web sites, PubMed or Google Scholar.

Consultation with prospective rotation sponsors. During orientation, faculty looking for students will give short presentations to help students consider their 2nd and 3rd rotation lab choices. During the first rotation, students are expected to consult with faculty whose research interests them to discuss the possibility rotating later in the semester. These allow students and faculty to become better acquainted and to evaluate possible mutual research interests.

Assignment of subsequent rotations. After students meet with prospective rotation sponsors, faculty and students indicate their preferences for rotations #2 and #3 to the Program Coordinator. These preferences will be used by the GAC in consultation with the DGS to schedule rotations. Rotations are scheduled on a rolling basis, about halfway through the previous period. If problems in scheduling rotations arise, the Chair and the GAC will assist students in exploring additional options.

3. Evaluation of a Student's Performance During Rotations

Faculty expectations. Faculty should make their expectations clear to prospective rotation students at their first meeting. A "Roadmap to Development" template can be requested from GAC or downloaded from the intranet as required. Students will be responsible for submitting the completed form to the DGS at the start of each rotation.

Presentations. At the end of each rotation, each student presents a short (~12 minute) seminar based on the work done during that rotation. The seminar should address the goals of the research, the background to the problem, the approach taken, and any progress made. Students are provided with written evaluations by the GAC and other faculty in attendance are expected to improve their presentation skills over the three rotations.

Grading. Students are graded only on a S/U basis to emphasize that the rotation is primarily a means of acquainting students with research generally and with specific areas in chosen rotation laboratories. Recording of grades and communication with the registrar are the responsibility of the DGS. Once a student affiliates with a laboratory, grading in BIOL:6199 becomes the responsibility of the faculty sponsor.

E. First-Year Teaching Training and Teaching Requirement

One of the iBio program requirements is that every PhD student spends two semesters during their graduate career as a half-time TA. Students will undergo intensive TA training during the Spring semester of their first year and will TA in our foundational undergraduate Biology classes. Students will be contacted with details of this training during the first teaching semester. Students assigned to teach lab sections in BIOL:1411 'Foundations of Biology' or BIOL:1412 'Diversity of Form and Function' should register for BIOL:5110 (Practicum: College Teaching for Biology TAs), a required 2 s.h. course that prepares you to teach each lab. Additional TA requirements are detailed below (Section IV.A). The Integrated Biology Graduate Program is not unique in having a TA requirement, however we are distinguished by our strong commitment to train our graduate students in effective teaching techniques. Students may of course TA additional semesters depending on the lab and training environment, with approval from the advisor, and based on TA availability.

II. ADVISING

A. Toward Best Practices for Graduate Students and their Research Advisors

The progress, development and success of a graduate student hinges on the commitment of both the student and the research advisor. Basic principles of best practices in mentoring and graduate student life appear in the two lists that follow. Graduate students should be aware of what is necessary for their success and their advisors likewise should be aware of practices that promote their students' best interests.

Although the concepts of commitment and responsiveness underlying the lists of expectations apply to all disciplines, the specifics of these principles vary considerably among the biological sciences, physical sciences, social sciences, and humanities (*UI Graduate College, August 2010. Adapted from "Compact Between Biomedical Graduate Students and Their Research Advisors," Association of American Medical Colleges*). Thus, these guidelines are intended to be modified, appended or reduced to fit specific departments, programs and disciplines. The Graduate College feels that graduate programs and their students can benefit from a concerted effort to incorporate these best practices, but we do not mandate, monitor, or enforce them in any particular way. Some potential uses of these lists of expectations could include:

•Presenting these expectations in orientation sessions for new graduate students.

•Introducing expectations at orientations of new faculty members.

•Incorporating the expectations into a program's graduate student handbook.

•Discussing the expectations during graduate seminars and faculty meetings.

•Creating a formal agreement signed by both the student and the advisor when the mentoring relationship commences.

•Establish guidelines for the regular evaluation of graduate student progress.

The department does require that each student fill out/update their individual development plan (IDP) and discuss the completed form with their advisor at least once each year (Dec./Jan.). The completed and signed form is then submitted to the grad coordinator. Submission of the completed IDP is required ahead of Spring semester registration.

B. Permanent Advisor/Thesis Advisor

After the first semester, advice concerning formal course work and supervision of research are the responsibility of the Thesis Advisor and Thesis Committee, who help design, review, and approve of the program of course work.

1. Choosing a Thesis Sponsor

Informal Discussions with Faculty. Toward the middle of the third rotation, each first-year Ph.D. student should begin discussing possibilities for permanent laboratory affiliation with one or more of his/her rotation sponsors. Students are free to seek the advice of any faculty member in making this choice, including the temporary advisor, members of the GAC, DGS or DEO. The student must inform the faculty member that they are interested in affiliating with that faculty member's laboratory, **but no commitments are made at this time.**

Statement of preferences. By the end of the rotations, each first-year Ph.D. student submits their affiliation preference, with the agreement and permission of the prospective advisor, to the Graduate Program Coordinator and the DGS. This choice is typically ratified by the GAC, in consultation with the department Chair, except in extraordinary circumstances. The results of the matching will be made known by the end of the fall semester and the new thesis advisor replaces the temporary advisor.

2. Changing Thesis Sponsors

In extraordinary circumstances, a student may change sponsors with approval of the new sponsor and the GAC, in consultation with the DGS and DEO.

C. Graduate Affairs Committee (GAC)

1. General Responsibilities of the Graduate Affairs Committee

All guidelines, requirements, and procedures followed by graduate students are supervised by the Graduate Affairs Committee (GAC). Students are encouraged to seek clarification or guidance either formally or informally from the GAC, its Chair (who is the Departmental Associate Chair for Graduate Studies/Director of Graduate Studies (DGS)), or from the Graduate Program Coordinator, who acts as an agent of the GAC. The DGS and GAC review all plans of study to ensure that they meet specified requirements of the department and the Graduate College. GAC is intended both to provide guidance for first-year graduate students and to monitor students' progress after the first year.

2. Responsibilities of GAC to First-Year Students

Monitoring the rotation program. GAC oversees the rotation program and assists students in scheduling rotations. In addition, GAC monitors the written faculty evaluations of each student at the end of each rotation. If these evaluations reveal potential problems, GAC initiates a meeting with the student to discuss them. *Students should also feel free to initiate a meeting with the DGS, the GAC, or the departmental Chair at any time and for whatever reason.*

3. Responsibilities of GAC to students after the First Year

• Each year, the Graduate Program Coordinator, acting on behalf of GAC, insures that each student's progress has been evaluated by the thesis committee and that a written report, including a summary of the student's performance at the meeting has been communicated to the student; a copy is provided to GAC, and a second copy is placed in the student's file. GAC is also responsible for certifying that students are eligible for continuing registration.

• Requests to take exams to meet degree requirements (for Ph.D. and M.S.) must be scheduled with the Graduate Program Coordinator well in advance of the exam. This includes the (Ph.D.) comprehensive exam, the thesis defense (Ph.D. and M.S.Thesis, or written examination for the M.S nonthesis). The Graduate Program Coordinator and the DGS ensure that all degree requirements have been met before a Request for Examination (i.e., defense) is submitted via electronic workflow to the Graduate College.

III. THESIS/EXAMINATION COMMITTEES

A. Ph.D. Students

Ph.D. candidates are required to establish a five-member thesis committee no later than Feb. of the second year. At least one member of the committee, but no more than two, must be from outside the department. The composition of the thesis committee must be approved by the DGS. The thesis committee is responsible for creating and administering the student's Comprehensive Examination (taken before the student's 3rd year), for advising the student, and for administering the Final Examination. The thesis committee will meet approximately once every 9-12 months to review the student's progress, after which a written summary of its findings is made available to the student (with copies to GAC and the student's file).

The following timetable is recommended for the comprehensive exam and post-comps progress committee meetings. Note that the precise year 5/6 schedule will be specific to each student:

Year 2: Precomps meeting in May, Comprehensive exam (August-November)
Year 3: First post-comps committee meeting (February-November)
Year 4: Second post-comps committee meeting (February-November)
Year 5: Third post-comps committee meeting to discuss sufficiency (November)
Defense by mid-April (Final single thesis deposit is in late-April).

B. Thesis M.S. Students

M.S. candidates are required to establish a committee of three faculty members, two of which must be from inside the department, in consultation with their faculty sponsor, who serves as chair of the committee. The committee is responsible for approving the thesis and administering the M.S. exam, and for ensuring that all other requirements are met.

IV. Ph.D. DEGREE: REQUIREMENTS AND PROCEDURES

A. Teaching Requirement

1. General Teaching Requirements for Ph.D. Students

Candidates for the Ph.D. degree must serve as a teaching assistant (TA) for at least two semesters on a ½-time basis, one semester of which must be in Foundations of Biology or Diversity of Form and Function (BIOL:1411 or BIOL:1412). TA training will be provided in the Spring semester of the First year. This TA requirement is intended to broaden the student's background in biology, improve communication skills, and prepare the student for future positions for which teaching is a required component. The teaching requirement cannot be met by informal teaching assignments, such as grading, which require less than the B level of language competency. One semester of BIOL:1411 or BIOL:1412 requirement must be met prior to taking the Comprehensive Examination.

2. Language Requirements for Non-Native Speakers

English Language Competency. Non-native speakers (except those who hold undergraduate degrees from U. S. universities) must achieve at least B level certification in English Language Competency for teaching assignments that satisfy the teaching requirement. Students not certified at the B level, who are in good standing otherwise, are still eligible to be supported by grant funds, or other assignments that might be identified. However, because it is a requirement that all students in the Ph.D. program teach for at least two semesters, students who have not achieved B level certification cannot earn a Ph.D. in the Department of Biology.

Achievement of B-Level Certification. Because one semester of the teaching requirement must be completed before students take the comprehensive examination, international students should concentrate on improving their language skills very early in their graduate career. At a minimum, B-level certification in the TAPE Program must be achieved before taking the comprehensive examination. In addition, some departmental TA assignments may require A-level certification. A fuller understanding of the English language concordant with attaining higher TAPE certification will enhance the student's scientific education and improve the student's performance in courses and on the comprehensive examination.

B. The Comprehensive Exam

1. Purpose and Nature of the Examination

The purpose of the comprehensive examination, as described by The University of Iowa Graduate College, is to serve as an inclusive evaluation of the candidate's mastery of the field and related fields of study, including the tools of the relevant research discipline in which competence has been certified. The exam must be completed in a timely fashion at the end of the student's 2nd year. It is the responsibility of the student and the respective thesis advisor to ensure that all deadlines are satisfactorily met.

Timing of the Comprehensive Exam. The Comprehensive Examination is expected to be completed no later than the first semester of the third year of residence. The exam may be postponed for up to one semester if a valid appeal is submitted by the student, with the support of the thesis sponsor, and approved by GAC before the first semester of the third year. Failure to take the Comprehensive Examination at the appropriate time or failure to meet other scheduled deadlines may result in dismissal from the Ph.D. program.

Required Forms. Prior to taking the examination, the student must complete an approved "Plan of Study Summary Sheet" and a "Request for Doctoral Comprehensive Examination" form. These forms are prepared by the Graduate Program Coordinator.

Suggested Timeline for the comprehensive exam for second year students:

• November: Enroll in the Spring semester course: Writing for the Natural Sciences, (BIOL:6188:0001).

• December-February: Assemble the Ph.D. Thesis Committee /Examination Committee.

• 3rd Friday in February: Report Ph.D Thesis Committee composition to the Graduate Coordinator (Marlys Boote) and the Director of Graduate Studies for approval.

• Two weeks prior to Oral Examination date: Written Comprehensive Exam proposal must be submitted to the committee members. This should be a revised version of the document turned in at the end of the Writing for the Natural Sciences course, incorporating any improvements suggested by the instructors of that course.

• August-November: Completion of the Oral Comprehensive Examination.

2. Composition of the Thesis and Examination Committee

The examination committee is the same as the thesis committee and should be determined primarily by the student, in consultation with the advisor. This committee should be chosen carefully, including faculty with varied but related expertise. There must be no fewer than **five** members on the committee, four of whom must be University of Iowa tenure-track faculty, with at least one member from outside the Biology Department. For the comprehensive exam, the thesis advisor designates an ad hoc chair. The outside member may serve as the ad hoc chair. The chair is responsible for ensuring that the comps guidelines are followed during the exam and facilitating discussion during the oral examination. *The thesis advisor should not participate in the discussion during the oral examination, except when minor clarification is required.*

3. Written Component

During the spring semester of the second year students are required to take the course, *Writing in the Natural Sciences* (BIOL:6188) in which they will begin to develop an ~ eight-page NIH-F31 or NSF-DDIG-style or equivalent grant proposal centered on their own thesis research ("on-topic"). Students will hand this in for grading at the end of the *Writing in the Natural Sciences* course in May. However, students will continue to revise the proposal in response to the comments of the instructors in the course and following scientific discussions with their advisor over the course of the summer. Students are encouraged to discuss their scientific ideas with their thesis advisor, their committee, and other scientists. <u>However, the writing must be the student's own, and the thesis advisor should not extensively re-write the document or significantly alter the direction or scope of the proposal, especially in the last weeks approaching the exam</u>.

4. Format

Students are required to follow the following format for proposals, which was designed to approximate the format for NIH individual predoctoral fellowship (F31) and NSF Doctoral Dissertation Research Improvement Grants (DDIG) applications. The specific aims and research strategy sections can total no more than eight pages, and should follow the following format:

Specific Aims (1 page): broad statement addressing the basic problem, state of current knowledge, preliminary studies and hypotheses to be tested. This section should not include references

Research Strategy (6-7 pages)

Background, significance, or introduction (1.5-2 pages)

Preliminary data (1-2 pages)

For each of 2-3 aims:

Rationale: why the study is being done, critical questions being asked and/or hypotheses to be tested (1/4 page)

Study design and expected results (3/4 -1 page)

Expected results and possible caveats (1/4-1/2 page)

Expected outcomes (new knowledge), implications and future directions (1/4 page)

All sections (except the specific aims page) will contain citations to relevant primary literature and specific recent reviews. The literature cited should be listed at the end of the proposal and is not included in the page count.

Figures and tables should be embedded in the text and are included in the page count. Figure legends and tables may use 9-point font.

Proposals must use 10-11 point Arial or Palatino font for the main text, single line spacing, and 0.5-1.0 inch margins all around. *Please see specific formatting instructions for the actual grant applications when later submitting these for F31 and DDIG funding, as each application has specific font and margin requirements* (11pt for NIH, 10pt for NSF, etc..).

Students must distribute the proposal to the committee exam chair no less than two weeks prior to the scheduled oral examination. The chair will then forward the exam to the rest of the committee. *Failure to meet this timetable may result in a rescheduling of the exam to give all committee members adequate time to review the document*. Also, if, ahead of the exam, the written document is deemed unacceptable by one or more members of the committee, the chair in consultation with the comps committee and the DGS may require that the exam be rescheduled and a new proposal written.

Pre-exam interactions: If there are committee members generally unfamiliar with the student's area of work, it may be appropriate to schedule a "pre-comps" meeting with the committee. This may be an informal meeting to introduce the general research area and scope of the student's work. Other informal meetings with individual committee members may also be appropriate. Although part of the goal of iBio's "on topic" comps is to help the students plan their work around logical hypotheses and biological questions, this is also an exam to judge whether a student can understand and communicate a research project in sufficient depth to progress to a PhD. It is therefore expected that 1) these pre-comps meetings should take place no later than four weeks prior to the exam date, and 2) that the student not solicit feedback on the proposal from faculty after the submission to exam committee. Students may continue to consult their advisor during the preparation of the oral presentation, but the advisor should not extensively re-work the talk on behalf of the student.

5. Oral Component

The student will provide a 20-30-minute formal oral presentation of the written proposal at the beginning of the oral examination. Typically, the student should be allowed to give this presentation in full without extensive interruption by the committee, except to clear up minor points.

Following the oral presentation, the student will be questioned about the content and experimental design of the proposal. The student should demonstrate expertise in their field and knowledge of the proposed experiments including details of the experimental design and the justification for choosing specific approaches. In addition, students should be prepared to answer questions on general scientific knowledge that underpins their proposed work. Committee members will question the student about the proposal to ascertain that the student understands the background to their thesis question, has formulated solid aims with clear expected outcomes and alternate strategies, and has a sufficient grasp of the experimental methodology to perform the planned work. The entire Oral Examination should not take more than two hours.

6. Criteria for Judging Performance on the Comprehensive Examination

Clarity of Written Proposal. Is it easy to see what is being presented? Is the background information clear enough to understand the problem? Is the proposed solution to the problem developed in a logical sequence? Are highly specialized terms or abbreviations explained?

Creativity. Is the approach new and/or innovative? Are the ideas novel and imaginative?

Knowledge of the Subject and Methods. Does the student have an in-depth understanding of the biology of the problem area: what is known and what is not? Is the student sufficiently aware of the limitations of the experimental methods used so far to address the problem?

Suitability of Methods. Are the proposed experimental methods the best possible? What are the alternatives? Does the student recognize experimental difficulties in the selection or use of the proposed methods? Would these methods be suitable for solution of the problem in a reasonable period?

Reasoning and Data Interpretation. Can the student interpret the data so as to come to a conclusion or to suggest another approach? Have alternative interpretations been considered sufficiently? When presented with a set of data, can the student interpret it properly?

Ability to Explain Difficult or Unusual Concepts. This pertains to the student's oral performance rather than the written proposal that was evaluated according to criteria listed above. Is the student understandable or confusing in explaining difficult material?

Knowledge of Material Peripheral to the Proposal. Are there serious gaps in the student's knowledge of biology when questioned about material somewhat removed from the proposal?

7. Possible Outcomes of the Exam

The Ph.D. thesis committee will determine the outcome of the exam. Each member votes Satisfactory, Reservations, or Unsatisfactory. This determination can be made based on the written exam, oral exam, or both at the discretion of each committee member. 66% of the committee members or greater voting pass means the student passes the comprehensive exam while 35% of the committee or greater voting fail/reservation means the student fails or the committee has reservations that must be rectified (see below table). For Reservations, specific instructions must be provided by the committee to the student as to what is needed to rectify the problem(s). Committee members should use this option only if the deficiencies are relatively

minor. Limitations on the nature of such conditions are outlined in the Manual of Rules and Regulations of the Graduate College. There must be a time limit by which the conditions must be met and the student, the Graduate College, and the GAC must be notified in writing what those conditions are and what the time limit will be. Usually, the allotted time will be less than 60 days, so that if the conditions are not met by the student (and the student fails the examination), the student will be able to re-take the examination in the timeframe outlined below. If a student is required to take more courses, the time frame can be modified. If the committee is satisfied, the reservation is removed and the student passes.

35% or more Unsatisfactory votes will result in a failing grade for the exam. Should this occur, the exam is rescheduled to occur within four months, but before the end of the Fall semester if possible (four months after the first exam/defense date is in accordance with Graduate College rules). If the second exam cannot be scheduled to occur in the same semester as the first exam/defense, then it must be scheduled for the semester immediately following (except in cases where new coursework would continue beyond this point). If the committee determines that the student still does not demonstrate a grasp of the research topic, the student would incur a second failure. In accordance with the rules of the Graduate College, students who have failed the Comprehensive Examination twice will be dismissed from the program on the grounds of unsatisfactory progress to degree and will be ineligible under any circumstances for readmission to the Department as a Ph.D. candidate. For further details concerning outcomes of the Ph.D. examination see: “Comprehensive Examination” within the Grad College website.

Committee Size	Pass	Still Pass with	Fail with	Reservations (For Comp Exams Only)
7 Members	5 positive votes (71%)	2 Negative votes	3 Negative votes **Is only 57% positive**	3 Reservations votes
6 Members	4 positive votes (66%)	2 Negative votes	3 Negative votes **Is only 50% positive**	3 Reservations votes
5 Members	4 positive votes (80%)	1 Negative vote	2 Negative votes **Is only 60% positive**	2 Reservations votes

C. Post-Comps Status

1. University Registration Requirements

The student must meet the registration requirements of the Graduate College:

“The doctorate is granted primarily based on achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one's discipline, at this University, beyond the first 24 semester hours of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (9 semester hours minimum) in each of two semesters, or (2) enrollment for a minimum of 6 semester hours in each of three semesters during which the student holds at least a one-quarter-time assistantship certified by the department as contributing to the student's doctoral program. For purposes of record and assessment of fees, student registration should reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of **72 semester hours of graduate work**.

2. Doctoral Continuous Registration

All students who have passed the Comprehensive Examination, and have completed the 72-s.h. residency requirement, are required to enroll for a minimum of 1 s.h. of coursework or research credit each semester in the academic year until successful completion of the degree. (Possible courses include BIOL:6199 Research, BIOL:6002 Doctoral Continuous Registration, and GRAD:6002 Doctoral Final Registration.

3. Seminar Course Requirement

All students are required to register for at least two 2-s.h. seminar courses prior to completion of the comprehensive examination (one is Writing in the Natural Sciences (BIOL:6188). At least *two additional 2-s.h. seminar courses* must be completed post comps. This requirement may be fulfilled by taking or retaking Spring COSMOS Seminar II (BIOL:6299) for 2 s.h. Appropriate seminar courses with a substantial writing or presentation component may be taken in other departments with the approval of the DGS/GAC.

D. Final Examination/Thesis Defense

1. Seminar

The Ph.D. final examination consists of a one-hour formal seminar and a thesis defense. The seminar is presented to a general audience, including any member of the University who wishes to attend. Please note that the talk should be scheduled at a time that would permit maximum attendance by all members of the Department. It does not have to immediately precede the thesis defense, although this is most often the case.

2. Thesis Defense

In the thesis defense, the Thesis Committee examines the student on the details of the thesis and on the relevant areas of biology. Students must (except in unusual circumstances) submit their approved Ph.D. theses to the Graduate College within five years of passing the comprehensive exam. The report of the final examination is due in the Graduate College office within 48 hours after the examination. Each member of the Thesis Committee evaluates the final examination. The same outcomes as those outlined for the comprehensive exam (see above) pertain to the thesis defense.

3. First-author Publication

PhD students in the iBio program are *expected* to have at least one first-author manuscript related to their original thesis work. This manuscript should be either accepted or undergoing minor revisions at a peer-reviewed journal at the time of their defense. In cases where this is lacking, a statement outlining the circumstances for the absence of a publication should be communicated to the Graduate Coordinator and DGS.

E. Summary Time-Table for the Ph.D.

1. Students Entering with Bachelor's or Master's Degree, Proceeding Directly to the Ph.D.

First Semester. (a) Consult with temporary advisor, choose 1st rotation (July-pre semester); (b) perform laboratory rotations; (c) take core graduate courses and seminars; (d) choose research advisor and begin thesis research (end of Fall Semester).

Second Semester. (a) Correct deficiencies (if any) in chemistry-physics-mathematics; (b) take additional core graduate courses (COSMOS); (c) undergo TA training and one-semester of the teaching requirement.

Second Year. (a) Establish thesis committee; (b) formulate a plan of study toward the Ph.D.; (c) continue research; (d) complete advanced course requirements, WINS; (d) Take Ph.D. comprehensive examination (end of summer).

Third Year (at latest). (a) continue research; (b) finish all required courses; (c) take 2-s.h. seminar course to satisfy the four-seminar course requirement.

Subsequent Years. (a) Finish thesis research; (b) write and defend thesis; (c) take at least one 2-s.h. seminar course until you have satisfied the minimum requirement; (d) write and submit work for publication.

2. Students Entering as M.S. Candidates and Proceeding to Ph.D. after Obtaining M.S.

Same as above except that a Master's degree must be obtained by the end of the third year, the Ph.D. Dissertation Committee must be established within the first semester after obtaining the Master's degree, and the Ph.D. comprehensive examination must be taken within one year after obtaining the Master's degree. See **section VII** for information on M.S. students wishing to transition to the Ph.D. program **without completing the M.S. degree**.

V. M.S. DEGREE IN BIOLOGY, WITH THESIS: REQUIREMENTS AND PROCEDURES

A. Core Requirements

All requirements listed in Section I.B must be met.

B. Thesis Sponsor and M.S. Thesis Committee

A student admitted to M.S. candidacy must identify a thesis sponsor prior to admission and form an M.S. Thesis Committee no later than the second semester of residence. This committee consists of three members, one of whom is the thesis sponsor. Students who change their degree objective from the Ph.D. to the M.S. with thesis may be granted an extra semester in which to identify a thesis sponsor. Failure to do so by the end of the one-semester grace period will result in dismissal from the program.

C. Course Work

At least 30 s.h. (in Biology or cognate disciplines) at the 3000-level or above must be taken, **not including courses taken to make-up deficiencies** (under I.A. and I.B, above). Specific courses, and areas in which courses are taken are to be determined by the thesis sponsor and/or M.S. Thesis Committee in consultation with the student as part of the **plan of study**. Credit for Research: Biology (BIOL:6199) pertaining to the thesis is limited to **9 s.h.** Among the courses included in the plan of study, at least two must be graduate level seminar courses for 2 s.h. credit (may not include WINS or the COSMOS Seminar I, but may include CBR (BIOL:5312). The seminar courses should include a writing requirement.

D. Laboratory Affiliation

Entering M.S. degree with thesis students must identify an M.S. thesis sponsor prior to admission. Notification that the affiliation is agreeable to the advisor must be sent to the Graduate Recruitment and Admissions Committee who will review the student's application and verify that all entry criteria have been met prior to admission. The placement is also contingent on approval by the DEO. Upon admission, the student affiliates directly with that faculty member's laboratory (at the start of the agreed upon semester). Such a student may be supported by teaching assistantships when available, or by research assistantships funded by their research sponsor's grants. M.S. students are not guaranteed funding by the department.

E. Thesis

1. Evaluation and Approval of Thesis

The student must prepare a thesis with the aid and criticism of a faculty sponsor and the thesis committee. The completed thesis must first be approved by the student's sponsor, and then by the student's thesis committee.

2. Guidelines

• *Thesis Problem.* The thesis problem is ordinarily identified by the research sponsor, but the problem, hypotheses, and approaches should be sufficiently well understood by the candidate that the thesis describes them clearly.

• *Student's Contribution.* The thesis should contain intellectual input from the student, in addition to a significant amount of laboratory, computational and/or field work. The thesis should include technically competent experimentation and other approaches, exhibiting a reasonable standard of sophistication.

• *Significance of Research.* The research findings should be significant enough that there are plans to publish them, though not necessarily as a complete paper.

F. Deadlines

The Graduate College Plan of Study Form (approved by sponsor and DEO) and the request for the Final Examination must be submitted via workflow by deadlines established by the Graduate College in the semester in which the degree is expected. The student must also file for the Degree in MyUI. Forms for these purposes are available from the Graduate Program Coordinator.

G. The M.S. Final Examination

The thesis defense consists of an oral examination administered by the Thesis Committee. Should this be failed, the student may try again in the next semester or summer session. A second failure will make the student ineligible to continue as a graduate student in the Department of Biology.

The exam procedure is the same for all students including entering M.S. candidates, Ph.D. candidates in good standing who choose to change their status to M.S. with thesis, and Ph.D. candidates who fail the Comprehensive Examination and change their status to M.S. The oral examination will mainly be a defense of the thesis. This oral examination is intended to indicate

that the student both comprehends the nature of the research accomplished and can analyze and interpret experimental and other relevant data.

VI. NON-THESIS M.S. DEGREE IN BIOLOGY: REQUIREMENTS AND PROCEDURES

A. Core Requirements

All requirements listed in Section I.B must be met.

B. Sponsor and Examination Committee

Students cannot be admitted to the iBio graduate program with the intention to undertake a non-thesis M.S. degree. However, iBio students admitted into other degree tracks may opt to graduate with this degree after two semesters, following discussions about their situation and goals with their Faculty Advisor and the DGS.

Students must identify a faculty sponsor prior to admission to non-thesis M.S. candidacy and must establish an Examination Committee no later than the end of the semester in which the student switches into Non-Thesis M.S. candidacy. The committee consists of three members including the sponsor (who will chair the committee).

C. Course Work

At least 34 s.h. of 3000-level or higher course work must be taken, not including courses taken to make up deficiencies from I. B. or C. (see note 2). Up to 8 s.h. of supervised Research: Biology (BIOL:6199), though insufficient to form the basis of a Master's Thesis, can be used to satisfy the total requirement for 34 s.h. of coursework. No more than 4 s.h. may be assigned to the required "report" (see below). Among the 34 s.h., the student must take at least two graduate level seminar courses for 2 s.h. credit (not including WINS or the 1 s.h. version of COSMOS). These courses should include a writing requirement.

D. Written Report

The student must prepare a written report based on library research, on a topic chosen by the student in consultation with his/her sponsor. No more than four hours of credit may be submitted for this report, using BIOL:6899, toward the necessary total of 34 hours. A copy of the report is to be deposited into the student file.

E. Written Examination

After the report has been approved by the faculty sponsor, the student is eligible to take the written examination (prepared and administered by the three-member Exam Committee, covering the student's graduate program in Biology, including the area of the required report). The examination should emphasize breadth of knowledge and the ability to work with knowledge acquired to answer broad, as well as narrow, questions of biological importance. If this examination is failed the student may be re-examined in the following semester or summer session. No oral examination is required. In the event of marginal written examination performance, however, the Exam Committee or its appointed subcommittee may ask the student, in an interview, to expand upon, or explain answers not fully satisfactory, after which the

Committee will determine whether the student has passed or failed the examination. A grade of pass completes requirements for the degree.

Students who pass the Ph.D. Comprehensive Examination and later change their degree objective to M.S. (without thesis) need not take a written examination, since the Comprehensive Examination includes an oral examination that can substitute for the M.S. written examination.

VII. Advancing from the M.S. to the Ph.D. program

Transitioning from the M.S. Thesis program to the Ph.D. program can be approved for qualified students seeking to pursue a Ph.D. with the **same faculty sponsor, with mutual agreement between student and sponsor**. **This transition can be made any time prior to the defense of the M.S. degree and does not require completion of the M.S. degree.**

The application process to advance directly to the PhD program does not require a formal on-line application. Statements from the student seeking advancement and from the advisor confirming support according to direct lab affiliation guidelines are submitted to the DGS, graduate coordinator and Biology DEO. Once advancement is initiated, the Graduate Recruitment and Admissions Committee (GRAC) votes on admission to the Ph.D. program and this decision is ratified by the DGS. A “Change of Status” form is submitted to the Graduate College and approved by the DGS. Courses 3000 level and above taken as an M.S. student, including Research Biology, transfer toward the Ph.D. Any cognate course deficiencies remaining from entry to the M.S. program need to be addressed within the first year in the Ph.D. program.

Students wishing to leave the M.S. program (with or without completion) and enter the Ph.D. rotation program must reapply to the Integrated Biology Ph.D. program.

VIII. FINANCIAL SUPPORT

Reviewed: July 2025

A. Conditions of Support

1. Ph.D. Students.

Typically all PhD students in the department receive full financial support (12-month stipend, tuition and fees) for 5 years, provided they make satisfactory progress toward their degree. However, funding is contingent upon the availability of resources and cannot be guaranteed. Funding also depends on whether the student is qualified for and the availability of teaching assistantships. Support following the fifth year will depend on the availability of funds and an assessment of the likelihood that degree requirements will be completed in an acceptable time-frame.

2. M.S. Students (w/ or wo/ Thesis).

Thesis M.S. students may be supported by research grants or Teaching Assistantships during the academic year, contingent upon the availability of resources. Salary is negotiated by COGS. TAs generally receive the minimum academic year tuition scholarship required by the Graduate College. Support of any kind is generally not provided to students pursuing a M.S. without thesis.

B. Sources of Support

Students in the iBio program may receive support through half-time teaching or research assistantships, which are designed to balance their dual roles as both students and contributors to the academic mission. A graduate education in Biology is like a two-engine plane: one engine is the coursework and research, the other is the assistantship. Both are essential to keep the student aloft, but the destination—a thesis and degree — depends primarily on the research engine. A graduate student must continue making steady progress on research regardless of teaching assignments. The stipend reflects the student's overall role in the academic ecosystem—not just the hours spent in the classroom, but in growth as a scholar.

1. Research Assistantships.

Funds for most research assistantships come from faculty research grants. Research assistantships are typically designated as half–time appointments. They may be designed to permit students to devote themselves full-time to their own research or to assist half-time in other projects in the lab. This is determined by the supporting PI.

2. Teaching Assistantships.

Teaching Assistantships are usually half-time appointments, but may (rarely) be ¼-, ¾-, or full-time. Half-time service usually requires 6-8 contact hours in laboratory or discussion class sessions a week. Additional time is required to attend class lectures, attend staff sessions, prepare and administer quizzes, and grade exams and homework assignments. Students with officially designated ½-time appointments may register for a maximum of 15 s.h. per semester, but are advised to register for fewer courses in the first semester as a teaching assistant. With ¾-time appointments, registration is limited to 9 s.h. A few summer TA appointments may be available (1 or 2 months). M.S. candidates who hold an academic year teaching assistantship are guaranteed a tuition scholarship at the level specified in the existing University agreement with COGS. Non-native speakers must attain B-level language certification to be eligible for teaching assistantships.

3. Internal Fellowships

Starting Summer 2024, all graduate students applying for Biology summer funding must also apply for internal Graduate College or CLAS fellowships, wherever eligible. Since eligibility includes having successfully completed the comprehensive exams (by the February prior to the summer in question) pre-comps students do not need to have submitted an application. The results of the Graduate College application should be included in the iBio summer fellowship application.

Competitive iBio graduate summer fellowships will be primarily funded from the named sources of graduate student support (e.g., Dykstra, Lynch, Reiter) and from additional sustainable sources of support (as determined by the DEO). Named fellowships will be awarded only on a competitive basis: elected members of the departmental executive committee will review applications and rank applicants based on merit. The total number of summer fellowships will vary depending on the yearly budget. Fellowship recipients are required to provide a summary of accomplishments during the term of the fellowship and this summary may be used to communicate impact of the fellowship program to the donors. If asked to do so, students will write directly to donors to thank them and indicate the value of the supported research.

4. Other University-Wide Appointments and Support.

The Department participates in externally funded training grants and interdepartmental programs/science outreach internships. Support from these programs and their requirements vary widely and in most cases the requirements are not applicable to first-year students.

5. External Fellowships.

The Department encourages graduate students to apply predoctoral fellowships from all sources including the NIH, NSF, and private funding agencies. The graduate college offers incentives for this type of submission.

C. Graduate Student Paid Leave and Vacation Policy

Graduate assistants receive paid holidays for major university-observed holidays such as New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving (and the following Friday), and Christmas (plus one adjacent day).

Graduate students at the University of Iowa who are appointed as Teaching Assistants (TAs) or Research Assistants (RAs) on a half-time basis are eligible for paid vacation leave and sick leave as specified by the graduate college. Vacation leave must be scheduled with supervisor approval.

IX. GRADUATE STUDENT PARTICIPATION IN THE DEPARTMENT

A. Graduate Student Steering Committee (GSSC)

Graduate students in the Department of Biology collectively act within the department as a constituent organization that jointly sponsors certain activities, both professional and social (i.e., holding practice talks for students, and organizing the yearly graduate student retreat), and elects its own Graduate Student Steering Committee (GSSC). The elected members of the GSSC serve as officers of the organization. Incumbent members of the GSSC arrange for annual elections and maintain a list of alternate members who become members of the GSSC in the event vacancies develop. To be elected, students must be in good academic standing. Re-election is possible. The elected members of the GSSC may also serve as student representatives in Department of Biology faculty meetings.

B. Graduate Student Input in Departmental Matters

Students influence departmental practices informally through day-to-day contact with each other and with faculty and staff. Agenda notices are distributed in advance. Any person recognized by the chairperson may speak. Attendance at meetings dealing with evaluation, retention, and promotion of personnel are restricted to faculty and essential staff members; however, graduate student input relevant to candidates for tenure track positions is solicited. Graduate students may also have a representative on the GRAC.

C. Graduate Student Travel Awards

As Departmental funds allow, the Biology Department will provide travel awards (up to $2000) for all iBio PhD students in their fourth year to present their research/graduate work at external conferences, meetings, symposia and similar professional or academic gatherings. Presentation and attendance must be approved by the PI/mentor. The travel award funds may

only be used for registration, transportation, housing, and food (restricted to levels specified by the university) during the conference.

With special permission from the DEO and DGS, travel funds may be used in a different year (i.e. third or fifth). This will be dependent on available funding. No student may receive this travel award more than once.

For payment for or reimbursement of travel expenses, the student must attach proof (email or letter) that their presentation was accepted to the conference.

It is expected that students will use personal funds and/or funds from other sources for travel beyond the scope of this award. Some sources include the Graduate Student Senate, the Executive Council of Graduate & Professional Students, International Programs (for travel outside the U.S.), and relevant research or training grants.

The T. Anne Cleary International Dissertation Research Fellowship is available for UI Ph.D. candidates to conduct dissertation research outside of North America.

D. Graduate Student Research Excellence Awards

All senior iBio students in or beyond their third year are eligible for a research excellence award. Interdisciplinary program (IDP) students affiliated with a Biology Department laboratory are eligible for a second award, Evidence of research excellence includes publications, presentations at scientific meetings, and/or fellowship and grant awards. The Graduate Affairs Committee (GAC) will be responsible for soliciting nominations and selecting awardees.

Graduate student awardees will be selected based on their Fall COSMOS presentation. iBio students wishing to be considered will let GAC know ahead of their presentation and will submit a short (< 1 page) summary of their research accomplishments and impact. Although registration in COSMOS is not required for IDP students, IDP students wishing to be considered for an award will be expected to attend at least 10 one hour-long COSMOS sessions, fill out peer feedback forms at each session they attend, and let Marlys and GAC know at the start of the semester that they wish to be included in the presentation schedule. Students wishing to be considered should plan on using their COSMOS presentation to provide an overview of their research accomplishments rather than a single-year update of their work.

Three members of GAC will attend each session. The evaluation rubric will include: (i) the significance of the work within the field; (ii) the research plan, implementation and analysis; and (iii) the clarity of the presentation. Awardees will be notified in mid-December.

X. GRADUATE STUDENT DISMISSAL PROCEDURES

A. Graduate College Policies

Graduate Policies on Academic Standing, Probation, and Dismissal [including grievance procedure] may be found on the Graduate College website.

B. Department Procedures

1. Dismissal Due to Inadequate GPA.

A student who does not meet the departmental GPA requirements (see Section I.B) can no

longer be a graduate student in good standing in the department and will be dismissed. In very unusual cases involving extenuating circumstances, the GAC may recommend to the Chair that a student be given an extra semester to meet the GPA requirement.

2. Dismissal Due to Failure to Make Satisfactory Progress.

Causes for Dismissal. Unsatisfactory progress includes any of the following:
Failure to meet departmental deadlines for completion of formal course requirements or satisfactory completion of the comprehensive examination; Voluntary disaffiliation from a research laboratory and inability to identify a new research sponsor within four weeks; Dismissal from a research laboratory by the research sponsor because of unsatisfactory performance or unsatisfactory progress in research; and inability to identify a new research sponsor within four weeks.

Appeal of Dismissal Due to Failure to Meet Departmental Deadlines. Students may petition GAC in writing for extension of a deadline. The request for an extension must provide sufficient information to allow the GAC to decide whether an extension is justified. If the request for an extension is denied, the student can no longer be a graduate student in the Department.

Appeal of Dismissal Due to Failure to Identify a Research Sponsor Following Disaffiliation or Dismissal from a Laboratory. If a student leaves a research laboratory for any reason, the student should immediately consult with the DGS and/or DEO to determine an appropriate course of action, which could include mediation by the DGS and/or the DEO. The decision to dismiss a student for failure to identify a new sponsor within 4 weeks can be appealed to the GAC in writing.

XII. FACILITIES AND RESOURCES

A. Departmental Facilities

Research Facilities. Department-sponsored facilities exist to facilitate research. Descriptions of these and other department facilities and instructions for their use can be found on the Biology homepage. Among the available facilities are: the Carver Center for Imaging, the Developmental Studies Hybridoma Bank (DSHB), the Electronics Shop, Greenhouse, Information Technology and Computer Services, and the Carver Center for Genomics (DNA sequencing, Microarray Analysis, Software). Core facilities outside of the department are also available. These are a collection of centralized laboratories dedicated to developing and providing state-of-the-art research resources to facilitate biomedical research. They are available on a fee-for-service basis to the entire health sciences community. A comprehensive listing of the facilities can be found online.

Copying/Printing Privileges. Students may use copiers in 125 BB or 108 BBE (or elsewhere in the Department) or copiers in the Biology Library, subject to the following conditions: a) Copying related to official teaching duties may be charged to a department account. b) Copying directly related to research may be charged to a specific laboratory account with prior approval of the supervising faculty member. c) Copying of material for use in courses taken by the student and other copying not related to official teaching duties or supported by grant accounts must be paid for by the student; such copying should ordinarily be done so as not to inconvenience other users, preferably on one of the library copiers. Students will also be supplied with specific codes for printing research or teaching related jobs.

B. Libraries

1. University Libraries.

University libraries including the Sciences Library can be accessed online.

2. Sciences Library Access.

Biology graduate degree candidates are assigned electronic access to the Sciences Library. This permits access to the Library after regular hours. Acceptance of electronic access is with the explicit understanding that it will be used only by the student to whom it is issued. The access holder is not to admit any other person to the Biology Library or to take books or journals out of the library without signing out for them.

XIII. ETHICS

A. Scientific Misconduct

1. Consequences.

Scientific misconduct is grounds for dismissal from the Department of Biology.

2. Published policies.

A statement of NIH policies on Research Integrity may be found on the Grants & Funding page of the the NIH website. This statement includes a list of practices that involve scientific misconduct. The policies of NIH regarding academic misconduct are to be adhered to at all times. It is extremely important for students to understand these policies and their implications for their own research. Note that misconduct does NOT include honest errors of judgment or differences of opinion regarding the interpretation of data.

B. Academic Misconduct

Any form of cheating, plagiarism or misrepresentation of one's work in respect to curricular and research requirements is grounds for dismissal. **Plagiarism is defined a**s taking another's ideas, words, or creative works and presenting them as your own, or presenting them intentionally without proper attribution (see Appendix I for clarification and the Graduate College Manual for an outline of Graduate School Policy regarding Academic Misconduct). **Plagiarism is "cheating" and is not tolerated.**

C. University Policy on Sexual Harassment and Human Rights

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. It is critical for graduate students both as colleagues in a laboratory setting and potentially as TAs to understand what constitutes sexual harassment, how to avoid it, and how to deal with it when it arises. Students should access the University Sexual Harassment webpage for definitions, assistance, and a statement of the full University policy. In addition, refer to the University policy on human rights here.

APPENDIX I: Recognizing and Avoiding Plagiarism

A. Recognizing Plagiarism

1. Definition.

Plagiarism is the use of other people's intellectual material and/or efforts in place of one's own work, and representing these materials and/or efforts as one's own work. In other words, "plagiarism occurs when a writer uses someone else's language, ideas, or other original material without acknowledging the source" (from "Defining and Avoiding Plagiarism", by the Council of Writing Program Administrators, obtainable from the Internet here).

2. Examples of Plagiarism in an Academic Setting.

• Presenting part or all of another student's lab report or other written assignment as one's own.

• Use of an essay, review, report, or other material purchased or obtained free from any kind of "writing service" or database (such as are found on the Web) to complete a class assignment.

• Copying from an unpublished or published source, including a textbook, lab manual, or other class material.

• Copying from a published paper and using the material in one's own term paper, grant proposal, or manuscript without proper attribution.

• Copying from a web site and using the material in one's own term paper, grant proposal, or manuscript without proper attribution.

B. Negative Consequences of Plagiarism in an Academic Environment

1. Plagiarism is cheating.

Students are here to learn a body of skills and materials, and to be assessed on how well they have learned. Any form of cheating impedes learning and misrepresents one's capacity to perform.

2. Products of intellectual work are property; just as other products of work are property.

To use another person's work without crediting that person is intellectual theft. This is a major issue in the academic world where ideas and the presentation of ideas are used for professional credit.

3. Plagiarism destroys trust between and among professors and students.

Trust is an essential component of research and the communication of ideas. Without trust, both education and research are seriously impaired. Plagiarism cannot be tolerated if the University is to fulfill its educational mission.

C. Penalties for Plagiarism

Penalties for first offenses of plagiarism or any other form of cheating can include reduction in grade on an assignment or in a course (including reduction to an F in the course) at the instructor's discretion. Plagiarism can also lead to disciplinary probation. A second offense can result in suspension or expulsion from the University.

D. Clarification: What Plagiarism Is and What It Isn't

1. Further Examples of Plagiarism.

A source does not have to be copied word-for-word to be plagiarized. The use of small sections of a source, interspersed with non-plagiarized material, without scholarly or peer attribution, is plagiarism. Likewise, using material that has been modified by paraphrasing, substituting synonyms, altering punctuation, or changing rhetoric in ways that do not substantially alter the original passage, without attribution to the source, is plagiarism. Evidence for plagiarism is the illegal use of material per se, not one's actual intent. A charge of plagiarism is not automatically nullified by claims such as "I didn't know I was copying", or "I didn't know I couldn't copy that material" or "I didn't intend to plagiarize." The concept of plagiarism applies to material from the Internet as for printed material. A person who supplies material that is illegally copied is as guilty as the copier in any case in which two papers are so similar that they are judged to share a common source, unless it can be clearly demonstrated that a fellow student has taken from another student's original work by copying, downloading, or stealing materials without the student's knowledge.

2. Some Uses of Other People's Language or Work that Is Not Considered Plagiarism.

Technical terms and language. No matter how specialized a term is, once it has been used to describe a certain situation, it becomes common property.

"Common knowledge". Repeating "boilerplate" phrases such as "The purpose of this report is to analyze heredity in *Drosophila*" would not ordinarily be counted as plagiarism, since such sentences may turn up repeatedly in reports written independently. However, statements expressing scientific ideas, data, or conclusions do not fall under this exception.

Quotations. It is legitimate to use another person's work verbatim if it is presented as a direct quotation. To do so, the material must be enclosed in quotation marks and the author and source must be cited. For example, here is a correctly presented quotation from a biology text: "....the biological species concept hinges on reproductive isolation, with each species isolated by factors (barriers) that prevent interbreeding, thereby blocking genetic mixing with other species." --Campbell, N.A., and Reece, J.B., Biology, 6th Ed. Benjamin-Cummings, San Francisco, 2002. p. 465. However, quotations are used only occasionally, to 'dress up' a report, and are not extensively used in primary scientific literature.

Improperly or Incorrectly Referencing Material. An incomplete reference or one with a typographical error is not plagiarism. However, deliberately citing the wrong sources is a serious offense, because it makes it harder for the reader to assess the accuracy of the information you present.

Recycling One's Own Earlier Writing. Technically, it is not considered plagiarism. However, if you quote your own earlier writing it is considered proper to place it in quotation marks and cite its source. Furthermore, "submitting the same paper in more than one course without the knowledge and approval of the instructors involved" is considered a form of cheating

(see Chapter IX of the CLAS Student Academic Handbook, cited above). And, the same would apply to submitting a paper to more than one journal.

E. How to Avoid Plagiarizing

1. Avoid poor work habits.

Many people inadvertently (but still improperly!) plagiarize because of poor work habits. For example, some people copy notes word-for-word from a source as they read, put the notes aside, and later compile the assignment by reading and typing directly from those notes.

2. Let your notes summarize your own ideas.

As you read source material, condense it in your own words, and write those as notes. Write commentaries on the material as you read it.

3. Write from an outline.

Make an outline of the assignment, then write a rough draft without consulting your sources.

4. Check facts.

Go back to the source material to check facts and to make sure that major ideas are expressed correctly.

5. Consult.

When in doubt, check with an instructor or your research sponsor.

F. Avoiding the misuse of Artificial Intelligence

There are many ways that AI can enhance a graduate education in research Biology. For example, assistance in identifying relevant research papers, and organizing sources are two reasonable uses of AI. Language models can help improve grammar, clarity and structure in scientific writing. This can be valuable for non-native English speakers and for all students interested in polishing a draft of a scientific document. Finally AI-driven tutoring systems can provide personalized explanations of complex biological concepts that can help students reinforce their understanding.

However, it is important to understand how AI can be misused, and can counteract or even sabotage your education and future as a biology professional. Some examples of AI use/abuse are listed below. This list is not comprehensive.

1. Overreliance on AI tools for tasks that require critical thinking and originality.

Students must not use AI to generate entire sections of research proposals, literature reviews, or thesis drafts as this will likely undermine the educational purposes (developing analytical and communication skills) of these types of assignments.

2. *Fabrication and manipulation of data.*

Using AI to simulate experimental results or alter figures violates academic integrity and will have serious consequences that cannot be overcome.

3. *Using AI tools without understanding their limitations or the biological context.*

Students should avoid using AI to interpret complex biological data as this may compromise the quality of the research and hinder the development of data analysis skills.