Please read over the information found within this handbook carefully as you will be held to the deadlines and requirements found within. The handbook is updated each year and therefore should be carefully reviewed annually for changes to policies and procedures.
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Organization of the Department

The Department of Biology is one of seven departments in the College of Life Sciences. Within the department there are 21 full time faculty and 5 full time staff. Graduate degrees offered in the Department of Biology are: MS in Biology, MS in Biological Science Education, and a PhD in Biology. There is no teacher certification program in our Biological Science Education master’s program but is possible through a Post-baccalaureate program if desired. Please see the department office staff for more information.

Department of Biology Staff

Sarah Willardson. Biology Graduate/Publicity Secretary. Works with all graduate student requirements as well as student travel. Meet with her with any questions regarding requirements, deadlines, and all things regarding graduate work. Also keeps website and department facebook up to date. 493 WIDB. 422-7137. sarah_willardson@byu.edu

Christina George. Biology Office Manager. Works with all faculty and undergraduate students in the Department of Biology. See her regarding any questions on department vehicle rental, classroom scheduling, and adding course sections. 401 WIDB. 422-7389. christinageorge@byu.edu

Jim Wooten. Biology Financial Manager. Works with all faculty and students in regards to financial transactions. Any financial questions should be directed to him. 495 WIDB. 422-4412. jim_wooten@byu.edu

Stephanie Burdett. Biology 100 Coordinator. Coordinates the teaching of all Bio 100 sections. If you would like to TA or teach a section of Bio 100 work with your advisor and Stephanie. 112 HRCB. 422-4336. stephanie_burdett@byu.edu

Maegan Leary. Crandall/6th floor Lab Manager. Manages students and supplies in 680 WIDB. If any lab supplies are needed for these areas, please contact her.

Michael Standing. Electron Microscopy Lab Manager. Manages use of EM lab in conjunction with Dr. John Gardner. michael_standing@byu.edu

Department of Biology Faculty

*Faculty members with an asterisk are approved to work as committee advisors and members

Marta J. Adair. Biological Science Education. A-115 CLFB. 422-8336. marta_adair@byu.edu

*Byron J. Adams. Comparative phylogeography, host-parasite relationships, coevolution, molecular systematics, speciation and species concepts, foodweb assembly, biodiversity and ecosystem functioning. 685 WIDB. 422-3132. byron_adams@byu.edu
*Mark C. Belk. Terrestrial and aquatic ecology; ecology of fishes; life-history responses to biotic and abiotic perturbations; predation and competition in size-structured populations; adaptation of organisms to local environments in terms of habitat use, coloration and acoustic signals. 175 WIDB. 422-4154. mark_belk@byu.edu

*Keith A. Crandall. Population genetics, bioinformatics, molecular evolution, computational biology, conservation biology, systematics (especially crustaceans). 675 WIDB. 422-3495. keith_crandall@byu.edu

*John S. Gardner. Electron microscopy. A-123 CLFB. 422-2202. john_gardner@byu.edu

*Richard A. Gill. Global change biology; ecosystem ecology; plant physiological ecology. 151 WIDB. 422-3856. rgill@byu.edu

*Jaime L. Jensen. Biological science education; development of scientific reasoning skills; pedagogical manipulations; pedagogical preparations; inquiry teaching; educational assessment. 699 WIDB. 422-6896. jamie.jensen@byu.edu

*Jerald B. Johnson. Evolutionary ecology; ecological speciation; life history evolution; evolution of mating and reproductive strategies; behavioral ecology; biological statistics; phylogeography; natural history and molecular systematics of desert fishes and tropical freshwater fishes. 153 WIDB. 422-4502. jerry.johnson@byu.edu

*Leigh A. Johnson. Plant systematics, morphology, evolution. 683 WIDB. 422-5241. leigh_johnson@byu.edu

*John S. K. Kauwe. Bioinformatics, human genetics, relationship between genotype and phenotype, genetic risk factors for Alzheimer’s disease, population genetics of aquatic organisms in the Western United States. 675 WIDB. 422-2993. kauwe@byu.edu

*C. Riley Nelson. Natural history, entomology, ecology, systematic biology; development of field guides and the popularization of scientific though and its uses. 123 WIDB. 422-1345. rileynelson@byu.edu

*Steven L. Peck. Spatial processes in ecology and population biology from both applied and theoretical perspectives, specifically in understanding how spatial dynamics influence the spread of insecticide resistance; the effect of gene flow of evolution and speciation; philosophy and history of biology. 155 WIDB. 422-4145. steven_peck@byu.edu

*Russell B. Rader. Freshwater ecology and evolutionary biology, processes that determine stream and wetland community structure, ecology and evolution of biological invasions, spatial and temporal variation in stream drift, trout-invertebrate interactions, wetland bio assessment. 173 WIDB. 422-9159. russell_rader@byu.edu

*Beverly L. Roeder. Anatomy, physiology, medicine and surgery, animal health, prevention and diagnosis of metabolic disorders, stable isotope investigations, the physiologic and nutritional ecology of bears. 697 WIDB. 422-6873. beverly_roeder@byu.edu
*Duke S. Rogers*. Phylogenetic systematics and evolution of mammals, conservation biology, phylogeography, biodiversity. 647 WIDB. 422-5898. duke_rogers@byu.edu

*Dennis K. Shiozawa*. Aquatic and fishery ecology; predation induced shifts in lentic energetics; the macro and meiobenthos of streams; biogeography/phylogeography of western fishes and aquatic invertebrates. 147 WIDB. 422-4972. dennis_shiozawa@byu.edu

*Jack W. Sites, Jr*. Herpetology, mechanisms of speciation, hybrid zone dynamics, origins of parthenogenetic reproduction, phylogenetic systematics, conservation genetics, biodiversity. 695 WIDB. 422-2279. jack_sites@byu.edu

*Larry L. St. Clair*. Lichen ecology and systematics. 290 MLBM. 422-6211. larry_stclair@byu.edu

*Michael F. Whiting*. Phylogeny of insects based on molecular and morphological evidence with emphasis on reconstructing the insect tree of life, computational phylogenomics, molecular evolution of insect vision, deciphering early patterns of insect diversification. 693 WIDB. 422-5651. michael_whiting@byu.edu

*Clinton J. Whipple*. Genetic mechanisms that determine plant morphology, focus on grasses including agronomically important traits in cereals such as maize, barley and rice. 679 WIDB. 422-9192. whipple@byu.edu

Edward R. Wilcox. Human genetic disease, DNA sequencing, microarrays. 687 WIDB. 422-3647. edward_wilcox@byu.edu

To see more information about the above faculty, please see [http://biology.byu.edu](http://biology.byu.edu)
Graduate Program

General Information
These guidelines have been prepared for the graduate student in the Department of Biology and must be used in conjunction with those contained in the Graduate Catalog and the graduate section of the General Catalog. Graduate students must stay informed about changes made to guidelines each year at both the department and university level. It is ultimately the student’s responsibility to be in compliance with all department and university regulations. Students will be required to sign and submit a contract each year stating that they are familiar with the current requirements. Forms for exceptions to policy are available from the Graduate Secretary or online through the Graduate Studies website. Petitions must be signed by the chair of the advisory committee, the department Graduate Coordinator, Department Chair, and the College Dean prior to being submitted to the Graduate Studies office.

Honor Code Statements
We believe in being honest, true, chaste, benevolent, virtuous, and in doing good to all men. . . . If there is anything virtuous, lovely, or of good report or praiseworthy, we seek after these things (Thirteenth Article of Faith).

As a matter of personal commitment, faculty, administration, staff, and students of Brigham Young University, Brigham Young University—Hawaii, Brigham Young University—Idaho, and LDS Business College seek to demonstrate in daily living on and off campus those moral virtues encompassed in the gospel of Jesus Christ, and will

Be honest
Live a chaste and virtuous life
Obey the law and all campus policies
Use clean language
Respect others
Abstain from alcoholic beverages, tobacco, tea, coffee, and substance abuse
Participate regularly in church services
Observe the Dress and Grooming Standards
Encourage others in their commitment to comply with the Honor Code

Specific policies embodied in the Honor Code include (please click on each to see each expanded policies) (1) the Academic Honesty Policy, (2) the Dress and Grooming Standards, (3) the Residential Living Standards, and (4) the Continuing Student Ecclesiastical Endorsement
Application and Admissions

Information

Our admissions criteria for graduate students coincide with the criteria currently published in the BYU Graduate Catalog, College of Life Sciences, as well as the Graduate Council’s Principles and Characteristics of Graduate Education. Pursuant to this, the following basic guidelines are used:

a. A GPA of at least 3.0 in the last sixty semester hours of upper9division coursework completed as an undergraduate student (no credits beyond the BS degree are used in calculating this GPA)

b. No graduate candidate can be accepted unless he or she has a faculty member in the department who is willing to serve as the committee advisor to that student. The faculty member must be within the Department of Biology and approved for Graduate Faculty Status (see previous list of Department Faculty) according to the department and college guidelines.

c. Graduate candidates can be accepted by multiple advisors but must choose one major advisor during the first semester for MS students or the first year for PhD students.

Acceptance Criteria

Acceptance is based on a balanced consideration of several areas of information including:

a. GPA (total and/or last 60 hours) for completed university courses. Although the university only calculates the GPA based on undergraduate coursework, all GPAs above a 3.0 will be considered and coursework will be analyzed by the department based on all classes taken. Successful candidates typically have an undergraduate GPA of 3.5 or better.

b. All official GRE scores. All scores will be considered, however, successful candidates typically have a combined Verbal and Quantitative score of 1200 or above and a Writing score of 4 or above. The most recent GRE score (must be within 5 years) will be evaluated, but all other previously recorded scores will be taken into consideration.

c. The Biology Subject Exam must be completed by matriculation.

d. Each candidate is required to submit three letters of recommendation from associates who have some understanding of the applicant’s abilities in relationship to the requirements of the graduate program. Preference will be given to those with a scientific background and/or those with advanced degrees with whom the candidate worked closely.

e. Strong consideration will be given to those candidates with professional experience in the field of Biology whether it is work, internships, or research. This experience could include special projects that resulted in publication and/or presentations at professional meetings.

f. A clearly defined statement of intent. The statement of intent should include areas of research interest as well as research ideas and a preferred advisor. No student can or will be accepted unless he or she has a faculty member in the department who is willing to serve at the committee advisor to the student. It is highly recommended to contact faculty in the department prior to application.

g. There is no “Provisional Status” category for the department; students are either qualified to be admitted or will be denied. Those requiring an exception to University guidelines will be accepted on a Provisional Status at the university level.
Application Deadline

a. Graduate student applications are evaluated once per year for admission into the Fall Semester.
b. Applications are due through the BYU Graduate Studies website no later than January 15th. Applications will begin to be reviewed on December 20, so the earlier the application is submitted, the better. Acceptances will be sent out by the end of January.

Requirements for Admission

a. A complete application must be submitted through the BYU Graduate Studies website no later than January 15th of each year. A complete application will include the following components:
   a. Form A—General Information
   b. Forms C—3 Letters of Recommendation—preference is given to letters that are written by those with a scientific background and/or those with advanced degrees with whom the candidate worked closely.
   c. Form D—Additional Information
      i. Statement of Intent
      ii. Resume
   d. Form P—Application Fee paid
   e. All official transcripts submitted
   f. Official GRE scores received
   g. Official TOEFL (or equivalent test) scores received
   h. Form I-1—required for International applicants only
b. Applicants must agree to maintain the University’s Honor Code (see http://honorcode.byu.edu)
c. Applicants must have at least a baccalaureate degree from an accredited US university or the equivalent from an international university (a four or five year program) before matriculation. The Graduate Studies office must receive an official transcript showing that the degree has been awarded. Study at BYU cannot continue past the first semester of a graduate program without BS verification.
d. At least a 3.0 GPA (scale of 4.0) in the last 60 hours of undergraduate, upper division coursework. All classes taken after the BS degree will not be counted in this undergraduate GPA, but will be considered along with the application.
e. For those with English as a second language, you must receive one of the following:
   a. IELTS
      i. Overall band score of 7.0 (minimum band score of 6.0 in each module)
   b. TOEFL (paper-based)
      i. 580
   c. TOEFL iBT
      i. Total score of 85 (minimum score of 22 in Speaking, and a minimum of 21 in Listening, Reading, and Writing)

Note: IELTS and TOEFL scores must be no more than 2 years old at the time of enrollment
*Students applying to more than one program on campus must submit a separate and complete application, including fee, for each program. Additional submission of scores is not required.*
Degree Requirements

Credit Hours—Minimum Requirements

Masters Programs (MS)

- 30 credit hours (24 coursework hours and 6 thesis hours); 20 hours must be 500 level or above.
- No more than a total of 10 hours from non-degree, senior, and/or transfer credit can be applied toward the MS program. No Independent Study courses can be used.
- Undergraduate credit can only be used by a MS student upon approval. Graduate Studies allows up to 9 undergraduate credits (only 300 and 400 level courses) if they pertain to the area of study. Courses cannot count towards the BS degree requirements and be applied to the MS degree.
- More information can be found in the current Graduate Catalog under “Credit Policies”

Doctorate Program (PhD)

- 54 credit hours (36 coursework hours and 18 dissertation hours)
- No undergraduate coursework may apply to the doctoral program courses (100-400 level)
- Up to 18 hours of Master’s coursework may apply towards the required 36 hours. The advisory committee must approval all transfer courses from the MS transcript. All transfer hours must be within the field of study.

Transfer Credits

- Must be a graduate level course to transfer to a graduate program; no independent study
- Must have received a B grade or better; no “P” grades
- No more than 10 credit hours for MS students or 18 hours for PhD students may transfer
- No international credits can be transferred without certification by examination

Minimum Registration Requirements

First Semester or Term

- New students (MS and PhD) are required to enroll in at least 2 credit hours during the first semester or term in which they are admitted.
- Recommended courses:
  - Bio 503—Research Orientation (required for MS students, optional for PhD)
  - Bio 691R—Department Seminar Series (MS students are required to take this class at least 2 semesters and PhD students must enroll for 4 semesters—all graduate students are encouraged to take this course as many semesters as is possible)
- Attendance at forums and devotions is expected during the duration of the graduate program

Subsequent Years in Active Status

- Full time status is 9 credit hours for graduate students
• Doctoral students must satisfy a residency requirement of two consecutive semesters of 6 credit hours each
• Minimum registration is 6 credit hours in an academic school year (September-August) after all coursework is completed.
• If 6 credit hours are not completed in any academic year, the student will be automatically dropped from the program. There is a $600 re-enrollment fee to continue once being dropped

Final semester of Graduate Program
• All students are required to enroll in at least 2 credit hours during the final semester or term of the graduate program (requirement may be waived if student completes all requirements prior to the start of a new semester or term)
• Students wishing to graduate in December must have a current ecclesiastical endorsement (even if all requirements are satisfied prior to the start of the Fall semester).

Eligibility for On-Campus Employment
• Graduate students must be enrolled in at least 2 credit hours during the semester in which they are employed on campus (including all RA and TA positions).
• Students enrolled for the upcoming Fall semester may work during the Spring/Summer without enrolling for courses—however, FICA taxes will be deducted from a student’s paycheck if they are not enrolled in at least 1 credit hour during the Spring or Summer term.
• International students must be enrolled in 6 credit hours each semester they are employed. A petition may be obtained for those students who have completed their coursework.

Deferring the Graduate Program
• Students who wish to defer must have completed at least 2 credit hours during the semester in which he/she was admitted with acceptable grades.
• Students may only defer for the following reasons:
  o Medical
  o Military
  o Mission
• Students will be excused from minimum registration requirements.
• Students must still complete the degree program in the required amount of time as stated by the university (5 years for MS; 7 years for PhD)
• The following stipulations apply:
  o LDS mission: Guaranteed re-entry immediately after mission release. University Form 6 and a new ecclesiastical endorsement are required
  o Other: To return to active status, a graduate student must complete University Form 6 (available online)
    ▪ Student may re-enter on or before the indicated date with no additional fee or cost
    ▪ Student may continue with the same research project (if still available) and with the support of the same major advisor and committee (as long as those individuals are at the university and are willing)
Only one Application to Resume Graduate Study (University Form 6) can be approved for an individual during his/her program.

Those who do not abide by the above procedures will incur a $600 fee to re-enroll.

No financial support is guaranteed for graduate students who wish to defer unless the department so specifies.

Student Progress

Requirements and Deadlines

**see all posted graduation deadlines for the semester in which you would like to graduate

MS Degree:
1. Program of Study and selection of Advisory Committee
   • End of 1st semester
2. Prospectus and Oral Presentation to Committee
   • End of 2nd semester
3. Oral Examination
   • End of 3rd semester (after coursework is completed)
4. Defense of Research
   • When research is 75-90% complete (usually beginning of 4th semester)
5. Application for Graduation
   • 1st month of 4th or final semester (see posted graduation deadlines)
6. Scheduling of Thesis Defense and submission of Draft
   • At least 2 weeks prior to Thesis Defense
7. Thesis Defense
   • At least 2 weeks after submission of Scheduling form and Draft
8. Thesis Submitted to Library for Binding
   • Within one week following thesis defense

PhD Degree:
1. Program of Study and selection of Advisory Committee
   • End of 2nd semester
2. Prospectus and Oral Presentation to Committee
   • End of 3rd semester
3. Oral Examination
   • End of 4th semester (after coursework is completed)
4. Defense of Research
   • When research is 75-90% complete (usually beginning of 5th year)
5. Application for Graduation
   • 1st month of final semester (see posted graduation deadlines)
   • At least 2 weeks prior to Thesis Defense
7. Dissertation Defense
   - At least 2 weeks after submission of Scheduling form and Draft

8. Dissertation Submitted to Library for Binding
   - Within one week following thesis defense

Bi-Annual Evaluations
   - Each student will be evaluated by their committee advisor in January and May of each year. Both the advisor and the student must sign each evaluation.
   - Any student who receives below a 3.0 program GPA or is evaluated as either “Marginal” or “Unsatisfactory” will be notified.
     - Any student receiving a GPA of less than 3.0 in two consecutive semesters or 2 marginal ratings in succession will be terminated from the program.
     - An unsatisfactory rating warrants removal from the program.
   - The following information is completed for each evaluation:

This student’s progress is rated as:
   ___Satisfactory
   ___Marginal
   ___Unsatisfactory

Rating due to:
___Has not completed a requirement by the stated deadline:
   _________Establish a graduate committee and submit Program of Study form
           (by the end of the 1st semester for MS or 2nd semester for PhD)
   _________Submit Prospectus
           (by the end of the 2nd semester for MS or 3rd semester for PhD)
   _________Coursework or Preliminary Oral Exam
           (by the end of the 3rd semester for MS or 2nd year for PhD)
   _________Defense of Research
           (when research is 75-90%)
___Poor performance on Coursework or Preliminary Oral Exam
___GPA below 3.0 or less than a C- in a course on their program of study
___Seminar attendance requirement not met
   (2 semesters for MS or 4 semesters for PhD)
___Previous evaluation action not met: ________________________________
___Performance on teaching evaluations: ___Satisfactory ___Needs work ___Unsatisfactory
Guidelines for Progress

• Requirement checks will be made by the graduate secretary at the end of each semester (fall, winter and summer). At this time, delinquent warning letters will be sent to both the student and advisor. Each letter should be signed by the delinquent student to acknowledge notification of possible consequences for missed deadlines.

• Any student who has missed a deadline will have one probationary semester to complete the requirement and become current on all posted requirements.

• Extensions of deadlines may only be obtained through permission by the committee advisor for legitimate need. If an extension is required, the advisor should email the graduate secretary.

• If a student has not completed the requirement within the probationary period, an additional memo will be sent to both the student and advisor stating that funding is suspended from the department. Suspension only applies to RA and TA assignments, not to tuition benefits if applicable.

• After 2 semesters of delinquent requirements, the student may be terminated based on evaluation by the graduate committee.

Program Requirements—Explanation

Program of Study and Selection of Advisory Committee

Program of Study

• Must be completed with the assistance of the Advisor

• Must comply with above stated guidelines regarding credit hour requirements (30 total hours for MS students, 54 hours for PhD students)

• Must include the required number of semesters in Bio 691R (Seminar) (2 for MS and 4 for PhD), Bio 699R or 799R (Thesis or Dissertation)(6 for MS and 18 for PhD), and Bio 503 (required for MS)

Selection of Advisory Committee

• All members of the Advisory committee must sign the Program of Study form (ADV 3)

• Return the form to the Graduate Secretary by the posted deadline

• Members of the Advisory committee must be cleared with the major advisor and be contacted individually and invited to be on the committee

• If a minor is declared, one committee member must be from the minor department

• Those unaffiliated with BYU must be approved by a Petition for Exception and include:
  o Reason(s) for including members from outside the university (e.g., what their specific qualifications are and what they bring to the committee that is unique)
  o Documentation for how the member will be funded for travel to BYU (they are REQUIRED to be physically present at the final defense and should be present at the Prospectus and Oral Exam)
  o A current CV of the external member—the CV will be evaluated against the departmental standards for awarding “Graduate Faculty Status” by the Graduate Coordinator.
MS Programs (due by the end of the first semester)
  o Minimum of 3 faculty members including the committee chair/advisor.
  o Minimum of 2 members must be from the department.

PhD Program (due by the end of the second semester)
  o Minimum of 5 faculty members including the committee chair/advisor
  o Minimum of 3 members must be from the department.
  o Only one external (unaffiliated with BYU) may be included on a committee unless there are 6 total committee members.

Change of Program of Study or Advisory Committee

Program of Study or Advisory Committee Member Change
  • All changes must be listed on the Program of Study Change form (ADV 3b) and signed by all committee members (only new members need to sign if change in committee has occurred)
  • Submit the completed form to the Graduate Secretary for final approval

Changing Committee Advisor
  • Each student accepted into the Department of Biology graduate program is expected to have spoken with a desired advisor about research interests, possible projects, office space, and funding for the student and project. As such, each item must be carefully evaluated to avoid a negative impact on both the student and advisor.
  • Due to the impact that changing the advisor may have, the following steps must be followed:
    o Student must contact his/her current advisor and discuss in detail the original agreements and ramifications in changing advisors.
    o Both parties must reach an agreement regarding if and when such a change can be made so that the faculty advisor’s needs and the student’s progress is not adversely impacted.
    o If a change is necessary, the student and the current advisor should meet with the new advisor and discuss the details regarding the change.
    o A new agreement should be made with the new advisor regarding research, projects, office space, and funding.
    o Once all parties agree to such a change, a memo signed by all three parties is sent to the Graduate Secretary and all members of the advisory committee.
    o The request must be approved by the Graduate Coordinator before a change can be made.

Prospectus
  • Prospectus of Research should be 4-6 pages of relatively loose research ideas.
  • Should be completed at the end of the 2nd semester for MS students and 3rd semester for PhD
  • Prospectus must be submitted and presented to the advisory committee for feedback. Feedback should include help on narrowing the research interest, how to get started on the research project, and information on how to write an NSF grant proposal for the project.
  • If the research emphasis changes in a major way after prospectus approval, a new prospectus should be presented and submitted.
• There is no formatting criteria, but the main sections should include:
  o **Title** (must contain good “retrieval” words)
  o **Introduction** (includes justification and objectives)
  o **Methods** (experimental design, description of study site, etc)
  o **Hypothesis**
  o **Pertinent Literature** (must include sufficient references to assure advisory committee members that student is familiar with the proposed research area)
  o **Anticipated costs** (must include information which will alert the advisory committee members if any expensive equipment or supplies will be needed that are not already available and how such expenditures are to be met)

• Attach either the provided cover/signature page located online or on the board, or create your own that includes the following information: title, date approved, and a space for each member of the committee to sign off.

• Give one copy of the prospectus to each member of the committee and one copy with the completed cover/signature page attached with all signatures to the Graduate Secretary.

**Comprehensive Oral Exam**

• Must be completed at the end of the 3rd semester for MS students and at the end of the 4th semester for PhD students

• The Oral Exam should be scheduled through the graduate secretary for use of the conference room and tracking purposes

• The forms needed include one cover sheet (department form #6) and an evaluation sheet for each committee member to be distributed before the examination begins. All members of the committee must sign their individual forms as well as the bottom of the cover sheet. All forms should be submitted to the graduate secretary after the oral exam is complete

• The Oral Exam will provide an opportunity for the advisory committee to probe in greater depth any issues they deem relevant to the student’s research project. This may include coverage of previous coursework, although this will normally be a minor part of the examination.

• Examiners should evaluate the student on total performance and not merely on those questions that he/she asks

• There are 3 possible grade options for the Oral Exam:
  o **Pass without Qualifications**: The student receives a 5 (outstanding) or 4 (adequate) to pass the exam without qualifications. No further work is required by the student unless defined by the committee
  o **Pass with Qualifications**: The student receives a 3 (retake portion) and all qualifications will be listed for the student to review and complete. The student must reschedule the exam in order to retake that portion of the exam
  o **Fail**: If the student receives a 2 (marginal) or 1 (poor) grade, the decision of what to do ultimately lies with the committee. There are 2 options: 1. Terminate the student and 2. Reconvene at a later date (typically one semester or year later) to retake the exam
**MS Programs:**
- Committee members will examine students on basic biological principles and concepts related to the focal area of study as well as any material indicated on the Program of Study. Coursework is a larger part of the MS Oral Exam than for PhD students.
- To prepare, students must meet first with his/her major advisor as well as each committee member for guidance on format and scope

**PhD Programs:**
- Prior to scheduling the Comprehensive Oral Exam, each student should set aside 4-6 weeks to complete the first draft of the following documents:
  - **Grant Proposal:** This should be a complete research proposal prepared according to a prespecified format (e.g., the NSF Dissertation Improvement Program guidelines). A budget and justification for all expenses should be included
  - **Literature Review:** This should be a thorough review of literature of the major theme(s) of the dissertation research. This will give the student flexibility to more fully develop ideas and to consider alternative or controversial points-of-view. The assignment permits the student to demonstrate an in-depth mastery and synthesis of the relevant literature including formats and page limits. If done well, this document may also be submitted to a journal or used as a chapter in the final dissertation
  - The major advisor should read both documents and return edited copies to the student for revision. After revision, both documents should be sent to all members of the advisory committee. A final revision will be completed after suggestions are made by the committee. Scheduling the Oral Exam should be done at this point
  - Any weaknesses in project design or protocol may result in a committee’s recommendation for further revisions and the issues may be revisited at the committee’s discretion.

**Defense of Research**
- Must defend research when it is 75-90% complete
- Must be scheduled through the graduate secretary
- Presentation to the advisory committee of the research progress for approval of approach, work completed, and proposed work to still be finished
- Submit completed form (department form) to the graduate secretary

**Final Thesis/Dissertation Defense**
- Scheduling of the defense (University form 8c) must be completed at least 2 weeks prior to defense
- Thesis/Dissertation draft should be emailed to the graduate secretary upon submission of the Scheduling form.
- Must be presented to the advisory committee in a public meeting—although the defense is open to the public, only members of the advisory committee may vote on the student’s performance
- University forms 9 (individual committee member reports) and 10 (report of committee action) should be submitted to the graduate secretary immediately following the defense
- There are 4 grading options for the final defense:
• Pass: All members of the committee find the thesis/dissertation ready to publish.
• Pass with Qualifications: The committee requires minor revisions to the written work. All qualifications should be listed on Form 10. Once the student has completed all qualifications, the advisor should sign off on the same form stating that it is complete.
• Recess: If two or more committee members vote to recess, the examination is recessed. The candidate will reschedule a second and final examination no sooner than one month later. It must be again formally scheduled through the graduate secretary and the university using form 8c.
• Fail: If two or more committee members vote to fail, the examination is failed. The student is terminated.

• See Thesis/Defense Procedures below for more information on formatting and submitting the work.

Graduation
• Graduation applications must be submitted online prior to submission of the Scheduling form (University form 8c).
• All graduation applications are submitted online:
  o Go to Route Y—Graduation
  o Email the Graduate Secretary upon submission for approval; include your intent to walk in the graduation ceremonies.
• A current ecclesiastical endorsement must be on file with the honor code office for the semester in which you intend to graduate.
• You must enroll for 2 credit hours during the final semester prior to graduation (unless all requirements are completed previous the start of the final semester)
Thesis/Dissertation Procedures

Thesis/Dissertation Format

- Margins: 1 inch margins on all sides
- Font: Should be black, a standard size (12 pt for text, including titles and headings and 10-11 pt for tables and figures). Use a standard, easily readable serif type such as Times Roman. The body should be double spaced.
- Page numbers: Preliminary pages should be counted and, if appropriate, numbered in lower-case Roman numerals. The body of the work should be numbered with Arabic numbers beginning with 1. All page are to be number consecutively in the body and the appendix (do not use letters: 1a, 1b, etc). See ADV Form 11, “Minimum Standards for Submitting Dissertations, Theses, or Selected Projects,” for more information.
- The standard university format for the title page, abstract, and acknowledgement pages should be followed. A template is found on ADV Form 11b
- Please submit final formatted paper to the Graduate Secretary prior to online submission for editing and approval.

Thesis/Dissertation Options

- A dissertation may be fulfilled by completing one of the following options:
  - Writing a regular research thesis/dissertation paper using formatting guidelines found above
  - Submitting a published journal article(s) in lieu of a regular research paper.
    - A minimum of 1 published article is required for MS students and 3 published articles are required for PhD students.
    - In cases of co-authorship of published journal articles, the student’s name must appear as senior author on at least one major paper for either MS or PhD students
    - The published work must be considered a “full-length” journal article rather than a communication, preliminary note, abstract, or letter to the editor.
    - The journal selected must be one in which major works of the respective field are regularly published.
    - The journal article must be peer-reviewed.
    - The work and length of time necessary to complete the study for publication should not be less than what is ordinarily expected for completing a regular thesis/dissertation in the same conditions
  - Any combination of the above options that is acceptable to the advisory committee chair and members, as well as the department chair.
Review and Approval Procedures

- Student should submit an electronic copy for his/her thesis/dissertation for approval from the dean no later than 2 weeks prior to the scheduled defense.
- Students will complete a final presentation of his/her Thesis/Dissertation to the advisory committee—all committee members must be present at this meeting!
- The public is invited to view the oral presentation of the Thesis/Dissertation
- After the presentation, all participants are invited to exit while the committee proceeds to test the presenter in an oral exam on the research material. The final discussion and voting will follow and will be done only by the advisory committee.
- There are four possible grade options and procedures for the defense
  - **Pass:** All members of the advisory committee find the thesis or dissertation of publishable quality. The student will then obtain all signatures from the committee on Graduate Studies form 8d (Submission of Thesis/Dissertation to the Library) as well as the dean. Submit all committee forms (forms 9 and 10) to the Graduate Secretary upon completion.
  - **Pass with Qualifications:** The committee requires minor revisions of the written work. Qualifications are written on the bottom of committee summary form 10. Form 8d may be signed at this time or the committee may wish to wait until all qualifications are met. The advisor should wait to sign the form until the student is ready to submit their thesis/dissertation for binding. Once all qualifications have been met, the advisor must then sign the bottom of Report of Committee Action form 10. The student should obtain the remaining signatures on form 8d prior to electronic submission.
  - **Recess:** If two or more committee members vote to recess, the examination is adjourned and planned for a future date. The student must reschedule a second (and final) defense no sooner than one month after the first. The same scheduling procedure must be followed, formally scheduling the second defense with the graduate secretary using form 8c.
  - **Fail:** If two or more committee members vote to fail the student, the defense will be marked as “failed.” When this occurs, the student will be terminated from the program and cannot reschedule a second defense.

Preparation for Binding

- No copies will be printed by the student for binding by the library. All thesis/dissertations will be submitted electronically.
- After all content has been approved by the advisory committee, the student should ensure that formatting is uniform throughout the paper, include the introductory pages (title, abstract, etc), and convert the document into a pdf using Adobe Professional (found on all campus computers). Add bookmarks for all pages, headings and subheadings, and save—be sure to chose the option “open bookmarks upon opening document”
- Upload the pdf document into the ETD website (etd.byu.edu) and submit for approval.
  - Both the department secretary and the college will approve the work—continue to check your email throughout the day to see if changes are needed.
After the department and college have approved the document, your ETD status will display “Library Office.”

Forms and Fees Required

**MS Students:**
- Print a copy of the title page only
- Deliver form 8d to the Library Administration Office, 2060 HBLL and pay fees.
- Bring all documents to the Graduate Studies Office in 105 FPH.

**PhD Students:**
- Print a copy of the title page only
- Go to [http://www.etdadmin.com/byu](http://www.etdadmin.com/byu) for Proquest/UMI Dissertation Publishing, upload your approved pdf document, pay the fee, and print the confirmation email.
- Bring form 8d, title page, and the confirmation email to the Library Administration Offices in 2060 HBLL for validation.
- Deliver all documents to the Graduate Studies Office, 105 FPH.
Financial Assistance

Departmental Funding Guidelines
Graduate students accepted to a program in the Department of Biology are awarded certain financial assistance benefits as outlined below and in individual acceptance letters. The following guidelines may be altered each year and do not guarantee future awards. In addition to a tuition award, students are also given Research or Teaching Assistant positions in the department according to the schedule below. These positions are not considered “no strings attached” stipends, awards, or guaranteed benefits, they are for the student to work in a lab or to assist a professor in a class. Students are expected to earn the money received during employment by putting in the appropriate hours.

All financial assistance benefits are contingent on satisfactory progress as evaluated by the committee advisor in the bi-annual evaluations.

Tuition Benefits

MS Students:
• Master’s students are awarded a tuition scholarship for up to $1000 for 2 of the 3 semesters, for a maximum of 2.5 years. Generally this scholarship is awarded for Fall and Winter tuition. If a student is charged less than $1000 in tuition based on the number of credits he/she is enrolled in, the award will only be up to the amount due.

PhD Students:
• Doctoral students are awarded a full tuition scholarship for all semesters, up to a maximum of 5.5 years. The amount awarded will be based on the number of credit hours the student is enrolled in. Students on an external fellowship grant will only be awarded a tuition scholarship once they no longer receive external support.

Insurance Awards

MS Students:
• Master’s students do not receive assistance with insurance coverage. Please see the university health center for more information on coverage options and pricing.

PhD Students:
• Doctoral students will receive an Insurance Award Scholarship each semester he/she is enrolled for a maximum of 5.5 years.
• This scholarship will be given as a cash award in the student’s financial account each semester.
• The amount of the award is based on one half of the current rate for on-campus health coverage. Single students will receive half of the basic single rate and married students will receive half of the basic married student rate.
• This scholarship may be used for on or off campus insurance.
• **Note: you must be enrolled in at least 1 credit hour in order to receive the Insurance Scholarship**

**Teaching or Research Assistantship Positions**

**MS Students:**
• You are guaranteed 5 semesters of TA/RA positions. 3 semesters must be Teaching Assistantships and 2 can be Research Assistantships. When you will do either a TA or RA will be determined by your committee.

**PhD Students:**
• 7 semesters must be Teaching Assistantships and the rest can be Research Assistantships. When you will do either a TA or RA will be determined by your committee.

**Travel Funds**
• All graduate students are awarded up to $800 per academic year for travel. This money should be used to present posters at various conferences, travel for research, etc. The money can only be applied to expenses involving travel to/from the area (bus, car, or air fare), hotel stays, and conference fees. No department funds will be used for food or other miscellaneous charges.
• Students are expected to be productive in their research and use the money annually to present and otherwise further their research.

**Procedure:**
• Students must submit a Request for Funding form to the graduate secretary; available online at biology.byu.edu or in 401 WIDB. The student, graduate advisor and the graduate secretary must sign this form.
• A travel application should be submitted to the travel secretary at least 10 days prior to the trip
• To receive reimbursement after the trip, the student must submit all receipts to the travel secretary with a Travel Reimbursement form.
• No cash advances will be granted. If a student cannot use personal funds, a faculty travel or purchasing card may be used. This card should be obtained from the committee advisor.

**Scholarship Awards**
• There are a variety of scholarships that are available both on and off campus. The Department of Biology encourages its graduate students to seek additional funding as needed to continue satisfactory progress in the program.
• On campus scholarships may include but are not limited to the following:
  
  - Department Scholarships: Applications can be found at lifesciencesscholarships.byu.edu and are awarded once per year. Applications are due February 1 of each year.
  - College Scholarships: Applications can be found at lifesciencesscholarships.byu.edu and are awarded once per year. College applications are the same as the department applications (only one submission is needed) and are due February 1 of each year.
  - Graduate Studies Scholarships
Office Allocations

Office Space
Currently the following rooms are allocated for Graduate Student use. These rooms often change and do not represent a binding list. Please be aware that you may be asked to move for new faculty, post-docs, etc. We will assign you space; we do our best to listen to requests for space but we are limited. There may also be available desk/office space available in advisor’s labs. Please check with the professor with whom you work for possible accommodations.

1st Floor Space:
• 163 WIDB—Office with space for 2 PhD students (may be asked to move for faculty or post-docs)
• 177 WIDB—Office with space for 2 PhD students (may be asked to move for faculty or post-docs)
• 179 WIDB—Office with space for 2 PhD students (may be asked to move for faculty or post-docs)
• 186 WIDB—General Graduate Student room. Room includes a copy machine, microwave, and student mailboxes that should be checked periodically. There is desk space, a chair, and internet access for 11 students. If you would like a key for a cabinet, please let the graduate secretary know

6th Floor Space:
• 601 WIDB—Only available for the 2011-2012 school year. Desk space available for 8 students.
• 645 WIDB—Desk space available for 6 students
• 646 WIDB—Desk space available for 6 students. Key pad entry door.

Courses Offered

Current Biology Graduate Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Taught (Professor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio 503</td>
<td>Research Orientation</td>
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</tr>
<tr>
<td>Bio 510</td>
<td>Advanced Plant Taxonomy</td>
<td>evenF</td>
</tr>
<tr>
<td>Bio 511</td>
<td>Lichenology</td>
<td>On Demand (St. Clair)</td>
</tr>
<tr>
<td>Bio 512</td>
<td>Angiosperm Phylogeny</td>
<td>oddF</td>
</tr>
<tr>
<td>Bio 525</td>
<td>Animal Disease, Biosecurity, and Zoonoses</td>
<td>W</td>
</tr>
<tr>
<td>Bio 541</td>
<td>Aquatic Entomology</td>
<td>evenF</td>
</tr>
<tr>
<td>Bio 555</td>
<td>Evolutionary and Ecological Modeling</td>
<td>evenW</td>
</tr>
<tr>
<td>Bio 556</td>
<td>Limnology</td>
<td>On Demand (Shiozawa)</td>
</tr>
<tr>
<td>Bio 557</td>
<td>Stream and Wetland Ecology</td>
<td>oddF</td>
</tr>
<tr>
<td>Bio 559R</td>
<td>Ecolunch (see header)</td>
<td>FW</td>
</tr>
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<td>Course Code</td>
<td>Course Title</td>
<td>Term</td>
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<tr>
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<td>--------------------------------------------------</td>
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</tr>
<tr>
<td>Bio 559R</td>
<td>Geometric Morphometrics (see header)</td>
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<tr>
<td>Bio 560</td>
<td>Population Genetics</td>
<td>oddW</td>
</tr>
<tr>
<td>Bio 580</td>
<td>Scanning Electron Microscopy</td>
<td>FW</td>
</tr>
<tr>
<td>Bio 581</td>
<td>Transmission Electron Microscopy</td>
<td>F</td>
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<tr>
<td>Bio 640</td>
<td>Phylogenetic Systematics</td>
<td>oddF</td>
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<td>Bio 641</td>
<td>Molecular Evolution</td>
<td>On Demand (Crandall)</td>
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<tr>
<td>Bio 652</td>
<td>Evolutionary Ecology</td>
<td>evenW</td>
</tr>
<tr>
<td>Bio 653</td>
<td>Community Ecology</td>
<td>evenF</td>
</tr>
<tr>
<td>Bio 661</td>
<td>Molecular Biology of the Cell</td>
<td>F</td>
</tr>
<tr>
<td>Bio 662</td>
<td>Genomics, Molecular Evolution, and Develop.</td>
<td>W</td>
</tr>
<tr>
<td>Bio 675</td>
<td>Pedagogy and Epistemology for Science Ed</td>
<td>On Demand (Jensen)</td>
</tr>
<tr>
<td>Bio 681R</td>
<td>Electron Microscopy Laboratory</td>
<td>On Demand (Gardner)</td>
</tr>
<tr>
<td>Bio 691R</td>
<td>Graduate Seminar</td>
<td>FW</td>
</tr>
<tr>
<td>Bio 695R</td>
<td>Practicum in Biology Teaching</td>
<td>On Demand (Advisor)</td>
</tr>
<tr>
<td>Bio 699R</td>
<td>Master’s Thesis</td>
<td>As Needed (Advisor)</td>
</tr>
<tr>
<td>Bio 799R</td>
<td>Doctoral Dissertation</td>
<td>As Needed (Advisor)</td>
</tr>
</tbody>
</table>
## Checklists

### MS Degree Checklist

<table>
<thead>
<tr>
<th>Event</th>
<th>Deadline</th>
<th>Form*</th>
<th>Projected Date</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program of Study</td>
<td>End of 1\textsuperscript{st} semester</td>
<td>U.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prospectus</td>
<td>End of 2\textsuperscript{nd} semester</td>
<td>Cover Sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral Exam</td>
<td>End of 3\textsuperscript{rd} semester</td>
<td>D.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defense of Research</td>
<td>When research is 75-90% complete</td>
<td>D.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application for Graduation</td>
<td>During 1\textsuperscript{st} month of final semester</td>
<td>Online</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheduling of Defense</td>
<td>At least 2 weeks before defense</td>
<td>U.8c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thesis Defense</td>
<td>At least 2 weeks following thesis submission</td>
<td>U.9 &amp; U.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submitted to Library</td>
<td>Within one week following defense</td>
<td>U.8d</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Forms*:  
- **U** = University Form—forms located at [http://www.byu.edu/gradstudies/forms/forms.php](http://www.byu.edu/gradstudies/forms/forms.php)  
- **D** = Department Form—forms found online or in the 4\textsuperscript{th} floor hallway

**NOTE:** Plan to finish each step before the absolute deadline. **Do not plan to hold any committee meeting or any examination at any time when school is not in session.** If you wish to schedule an examination during Spring or Summer terms, you are responsible for making sure that you committee members are available to attend.
## PhD Degree Checklist

<table>
<thead>
<tr>
<th>Event</th>
<th>Deadline</th>
<th>Form*</th>
<th>Projected Date</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program of Study</td>
<td>End of 2(^{nd}) semester</td>
<td>U.3</td>
<td>_________</td>
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</tr>
<tr>
<td>Prospectus and Oral</td>
<td>End of 3(^{rd}) semester</td>
<td>Cover Sheet</td>
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<tr>
<td>Coursework Oral Exam</td>
<td>End of 2(^{nd}) year</td>
<td>D.6a</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Defense of Research</td>
<td>When research is 75-90% complete</td>
<td>D.7</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Application for Graduation</td>
<td>During 1(^{st}) month of final semester</td>
<td>U.8a</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Scheduling of Defense</td>
<td>At least 2 weeks before defense</td>
<td>U.8c</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Dissertation Defense</td>
<td>At least 2 weeks after dissertation submission</td>
<td>U.9 &amp; U.10</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Submitted to Library</td>
<td>Within one week following defense</td>
<td>U.8d</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Doctoral Survey to Graduate Studies</td>
<td>Within one week following dissertation submission to library</td>
<td>See packet</td>
<td>_________</td>
<td>_________</td>
</tr>
</tbody>
</table>

Forms*: U = University Form—forms located at [http://www.byu.edu/gradstudies/forms/forms.php](http://www.byu.edu/gradstudies/forms/forms.php)  
D = Department Form—forms located in 495 WIDB

**NOTE:** Plan to finish each step before the absolute deadline. **Do not plan to hold any committee meeting or any examination at any time when school is not in session.** If you wish to schedule an examination during Spring or Summer terms, you are responsible for making sure that you committee members are available to attend.