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A GUIDE TO ASSIST STUDENTS OBTAINING A DOCTORAL DEGREE IN INTEGRATIVE BIOLOGY

FLORIDA ATLANTIC UNIVERSITY
DEPARTMENT OF BIOLOGICAL SCIENCES

Integrative Biology (IB) is a multidisciplinary doctoral program offered by the Department of Biological Sciences under the Charles E. Schmidt College of Science (CESCOS) with the participation of other CESCOS departments, the College of Medicine (COM) at Florida Atlantic University (FAU), and several local external institutions including the Max Planck Florida Institute for Neuroscience (MPFI) and the Scripps Research Institute Florida (TSRI) among others. The IB program encompasses cross-disciplinary, multilevel approaches to education and research in biology and other science areas. The program takes advantage of current faculty strengths in biological sub-disciplines such as ecology and environmental science; marine science; neuroscience; and molecular, cellular, and developmental biology to provide academic leadership and mentor graduate students.

I. THE FLORIDA ATLANTIC UNIVERSITY GRADUATE POLICIES AND PROCEDURES MANUAL

The privileges and responsibilities of the IB Ph.D. students are described below. Students are responsible for following all program and FAU rules and regulations. Students should consult the University Catalog for university-wide policies and procedures and the Graduate College webpage for those policies and procedures prescribed by the Graduate College of FAU. Students should also review the Graduate College Tuition Benefits Policy for details of the Graduate College's graduate assistantships and tuition benefits eligibility requirements. The following are guidelines pertaining specifically to the IB Ph.D. program.

The Integrative Biology Ph.D. Program now offers a Neuroscience concentration (Integrative Biology-Neuroscience (IB-N)) and an Environmental Science concentration (Integrative Biology-Environmental Science (IB-ES)). During the application process, students may choose to apply to either the core IB program, to the IB-N sub-specialty or to the IB-ES sub-specialty. Because the IB-N and IB-ES concentrations are housed within the IB program, students accepted to IB-N or IB-ES are responsible for following all rules and regulations of the IB program **in addition to** any IB-N or IB-ES concentration-specific requirements outlined under section **III** of this document entitled "**INTEGRATIVE BIOLOGY CONCENTRATIONS"**.

Students are expected to be willing, full-time participants in the program. It is expected that graduate students will forgo external (outside of the university) employment while enrolled in IB so that they may devote their full attention to the program. Student participation includes attending mandatory meetings and engaging in other activities of the program, such as the annual IB Ph.D. retreat. Failure to fulfill responsibilities, or to follow the policies and guidelines, may result in the loss of eligibility for scholarships and or teaching assistantships and subsequently exclusion from the program.

Students are expected to elect and form the following positions and committees by annual democratic elections:

A.) Two student leaders: one from the molecular/medical/neuroscience area and one from the ecological/environmental/marine science area. The student leaders are responsible for holding the annual committee elections for the positions described below and have the right to form *ad hoc* committees as required. The student leaders shall oversee, guide and direct the duties of the committees on a regular basis and communicate with the Program Director or Associate Director(s) about any student concerns.

B.) One IB Ph.D. Program Committee Student Representative: The student will participate in all the meetings of the program committee and represent the students' opinions to the best of their knowledge.

C.) Recruitment and Alumni Committee: This committee shall work closely with the Program Director and Associate Director(s) in the recruitment of new students, advertisement of the program, and in the maintenance of contact information of alumni students. This committee should represent the ecological/environmental/marine science and molecular/medical/neuroscience sides of the program.

D.) Retreat and Social Committee: This committee shall work closely with the Program Director and Associate Director(s) in the organization of events and activities of the IB Ph.D. program, such as the annual IB Ph.D. retreat. This committee should represent all four campuses and the ecological/environmental/marine science and molecular/medical/neuroscience sides of the program.

Teaching Assistantships (TA) are guaranteed for the first year to every IB Ph.D. student. Under most circumstances, students receive a tuition waiver with the assistantship. Tuition waivers do not cover student fees. The fee breakdown per graduate credit hour can be viewed under Graduate Resources, Tuition and Fees. Doctoral students must comply with the policies of the Graduate College regarding their status as full time students in order to be approved for tuition waivers (see section II, items A 1 - 7 and the Tuition Benefits Policy for Graduate Students for details). Upon completion of year one, IB Ph.D. students qualify for a TA or a Research Assistantship (RA) in the subsequent years on a competitive basis. TA positions are given with preference to students working with faculty who hold appointments within the department where the TAs are allocated. Program Faculty with affiliate appointments are expected to have sufficient funding to sponsor students in RA positions after the first year. IB Ph.D. students with an affiliate faculty member as a Ph.D. Supervisor may only be eligible for a TA position on a competitive basis when available or under special circumstances as approved by the Program Director.

II. COURSE WORK REQUIREMENTS

Doctoral degrees at FAU require at least 80 semester credits beyond the baccalaureate degree. Doctoral programs may accept a maximum of 36 credits earned elsewhere in an approved graduate program (a Master's degree is considered equivalent to 30 semester credits). A maximum of six graduate credits earned from another institution in a non-degree seeking status may be transferred. All transfer credits must be approved by the student's supervisory committee and FAU's Graduate College. Note: Students may not transfer Directed Independent Study (DIS) credits or credits specific to the completion of a Master's level research (e.g. courses entitled, Thesis Research, Master's Thesis Research, Master's Thesis Proposal Seminar, Master's Thesis Defense Seminar) into the Integrative Biology Ph.D. program. Students wanting to substitute coursework completed elsewhere for core program course requirements must receive approval to

do so from both their supervisory committee and the program faculty member(s) who teach(es) the course(s) in question.

A. The requirements of the IB Program are:

1. Students must complete a minimum of eighteen credits of course work with a cumulative grade point average (GPA) of 3.0 or higher**.**

   a) Students must maintain a minimum GPA of 3.0 in order to be eligible for tuition waivers and graduate TAs.
   b) Students must achieve a grade of 'B' or higher in each graduate course taken. If a student receives a score below a 'B,' the course cannot be used to fulfill degree requirements. The Graduate College may deny a student subsequent tuition waivers should they fail to achieve a 'B' or higher in a graduate level course.

2. Of the eighteen required (non-seminar) course credits, nine credits are to be taken in three required core courses and the remaining nine credits shall be fulfilled by completion of at least three elective courses (see below).

3. Students must maintain continuous enrollment in order to remain in the program. The University defines continuous enrollment as enrollment in at least one credit during at least two semesters (fall, spring, or summer) of every academic year. Students who fail to maintain continuous enrollment, as defined above, lose their eligibility for the degree and must reapply for admission to the program. Students with exceptional circumstances may petition for a leave of absence for up to one year. Failure to maintain continuous enrollment will result in an administrative withdrawal from the university.

4. Students are required to complete a minimum of 25 dissertation credits and may not enroll in dissertation credits until after they attain candidacy.

5. Prior to advancement to candidacy (start of term through advancement to candidacy), most students will register full-time (defined as nine fall and or nine spring credits) during semesters in which they enroll (summer enrollment is not mandatory). Students may petition the Graduate College for full-time status with reduced enrollment under special circumstances. International students with a reduced enrollment should consult with the Office for International Students and Scholar Services and may need to submit a Reduced Course Load Form.

6. Students must enroll in at least one credit during any semester in which they wish to be eligible for a teaching or research assistantship.

7. All students must submit a Plan of Study (POS) online through the MYFAU web portal before the end of their second semester in the program. The POS outlines their path through the program, specifying which courses will be taken during each semester from matriculation through graduation. Students who do not have a POS on file with the Graduate College by the end of their second semester will become ineligible for further tuition waivers until a POS is submitted. Students may revise their Plans of Study if it becomes necessary to do so in future semesters.

8. ALL students must register for ALL research credits as well as core coursework

credits in Integrative Biology (BSC 6390) and Scientific Communication (BSC 6846) via their program coordinator. Registration requests must be made in writing with signed permission from the student's Ph.D. Supervisor or the Associate Program Director for students participating in laboratory rotations. Requests can be made via the IB Ph.D. Registration form which can be found within the Forms and Policies section of the Biology Department website. Research credits which fulfill IB Ph.D. degree requirements include the following credit types: BSC 6905 IB Lab Rotation, BSC 7978 Advanced Research in Integrative Biology and BSC 7980 Dissertation. Note: students who enter the program with a confirmed PhD Supervisor will not enroll in IB Lab Rotation.

Students are encouraged to self-register for high demand elective courses as soon as possible in order to ensure that they receive a seat. Students should list those courses for which they have self-registered on their registration form with the notation (self-reg). Students wishing to enroll in elective courses marked "instructor permission required" should contact the listed instructors directly to request permission. Once granted, the student may then self-register in the course through their MyFAU webportal account.

B. Required core courses:

1. Integrative Biology (BSC6390) (3 Cr): This course presents the concepts inherent in an integrative view of biology. The Integrative Biology course is offered only in the Fall semester and **must** be taken within each student's first year within the program (where one year refers to two concurrent fall/spring semesters (e.g. Fall 2015 and Spring 2016 equals one year; Spring 2016 and Fall 2016 equals one year).

2. One course in Biostatistics: A course in statistics appropriate to the area of specialization of the student (minimum 3 credits):

- Experimental Design and Biometry (BSC 6206 or PCB 6456) (4 Cr)
- Experimental Design 1 (PSY 6206) (3 Cr)

3. Scientific Communication (BSC 6846) (3 Cr): This course introduces students to proposal writing and presentations for scientists. Scientific Communication should be taken in the fourth semester in preparation for the dissertation proposal.

Students must complete the core coursework within the first two years of the program. Students may not advance to candidacy, even if they have successfully passed the candidacy exam, until after the core coursework has been completed.

C. Other course requirements:

1. Research Credits:

- IB Lab Rotations (BSC 6905): First and second semester
    - Students who enter the program without having confirmed a Ph.D. Supervisor must participate in laboratory rotations within Year 1. See section IV.A.2 for details.
    - Students participating in the IB-ES concentration must confirm a supervisor as a

condition of acceptance and so will not participate in rotations (see IB-ES admission criteria in the University Catalog).

- Advanced Research in Integrative Biology (BSC 7978): <u>After confirming a Ph.D. supervisor) but **PRIOR** to candidacy</u>
  - Students should enroll in at least one credit of Advanced Research in Integrative Biology each fall and spring semester up until they have successfully advanced to candidacy.
- Dissertation Research Credits (BSC 7980): <u>After attaining candidacy</u>
  - Completion of a minimum of 25 credits of doctoral dissertation research is required to fulfill degree requirements.
- Note: there is no minimum required number of IB Lab Rotation or Advanced Research in Integrative Biology credits that a student must take in order to fulfill degree requirements.
- Note: **Directed Independent Study** (DIS) credits **may not** be used to fulfill degree requirements.

2. Students are <u>required</u> to enroll in a minimum of **three one-credit seminar/journal club/colloquium courses**, intended to be taken over the entire term of residence of the program (this requirement can be fulfilled before or after advancement to candidacy). No more than one seminar/journal club/colloquium course per semester counts towards fulfillment of this requirement. Students are expected to give at least one presentation in one of the seminar/journal club/colloquium courses. The title of the course **must** indicate that it is a seminar/journal club/colloquium (for example, Journal Club in Molecular Genetics, BSC 6905). The seminar/journal club/colloquium is **not a requirement for advancement to candidacy** but is a **requirement for graduation.** Students are permitted to enroll in the same seminar/journal club course across multiple semesters (e.g. they may take Seminar in Emerging topics in Avian Ecology in Fall 2015, Fall 2016 and then again in the Fall 2017 semester). The speaker rosters within seminar/journal club courses will vary by semester and so attending the same course for more than one semester will not be repetitious.

3. Three electives: Students are required to complete a minimum of three elective courses (nine credits minimum). The selection of elective courses to meet degree requirements is determined by consultation between the student, the Ph.D. Supervisor and the student's Ph.D. Supervisory committee. Students must fulfill the elective requirement within the first two years of the program. This requirement must be completed before a student may advance to candidacy. *See the University Catalog for descriptions of graduate courses offered by the Charles E. Schmidt Colleges of **Science** and **Medicine** which may be used to fulfill the IB elective requirement. This list of elective courses is not inclusive. Elective courses other than those listed may be chosen, but must be courses in biology, biomedical science, chemistry, or in other colleges/departments as approved by the student's Supervisory Committee which are designated 5000, 6000, or 7000 level. Courses designated as proficiency or remedial (4,000 level and below) may not be used to satisfy the elective course requirements. See also below (section III.A. and III.B.) and the **Integrative Biology Ph.D. Program catalog entry** for elective restrictions that are specific to program concentrations in Neuroscience and Environmental Science.*

III. INTEGRATIVE BIOLOGY CONCENTRATIONS

A. IB-Neuroscience (IB-N) specific degree requirements

1. All IB students are required to complete a minimum of three elective courses (nine credits). Students enrolled in the IB-N concentration must select graduate level elective

courses that are relevant to the field of neuroscience. Students without a strong neuroscience background at the time of admission must take two of the following five courses: the Neuroscience 1 (PSB 6345), Neuroscience 2 (PSB 6346), Practical Cell Neuroscience (BSC 6936), Neurophysiology (BSC 6930), or Advanced Neurophysiology Lab (BSC 6389). However students entering the program with a strong neuroscience background may choose three of the courses listed above or from more advanced elective courses from any area as approved by the Ph.D. Supervisor and/or the student's Ph.D. Supervisory committee. *This list of elective courses below is not inclusive and the selection of elective courses to meet degree requirements will be determined by consultation between the student and the Ph.D. Supervisor and/or the student's Ph.D. Supervisory committee. Other elective courses than listed below may be chosen but must be 5000, 6000, or 7000 level biology courses in biology, biomedical science, chemistry, or approved cognates.* Courses designated as proficiency or remedial (4,000 level or below) may not be used to satisfy the course requirements.

General Neuroscience
Neuroscience 1 (PSB 6345)
Neuroscience 2 (PSB 6346)

Molecular and Cellular Neuroscience
Advanced Cell Physiology (PCB 6207)
Developmental Neurobiology (PSB 6515 or PCB 6515)
Brain Diseases: Mechanisms and Therapy (BMS 6736)
Cellular Neuroscience and Disease (BSC 6936 or PCB 6849 or BSC 4930)
Practical Cell Neuroscience (PCB 6936 or BSC 6936)
Advanced Neurophysiology Lab (BSC 6389)
Seminar in Hypoxic Stress (BSC 6936)
Drug Addiction
Autonomic Function and Diseases (BMS 6523)

Behavioral Neuroscience
Seminar in Behavioral Neuroscience (PSB 6058)
Developmental Neuropsychology (PSB 6516)
Principles of Neuroscience (PSB 6037)
Contemporary Topics in Behavioral Neuroscience (PSB 6930 or ISC 6930)

Cognitive Neuroscience
Cognitive Neuroscience (ISC 5465)
Cognition and Complex Systems (ISC 6452)
Seminar in Cognition (EXP 6609 or EXP 6909)
Human Perception (EXP 6208)

Theoretical and Dynamical Neuroscience
Computational Neuroscience I (ISC 6460)
Self-Organization of Brain and Behavior (ISC 6441)
Bioinformatics (BSC 6458) or Bioinformatics: Engineering Perspectives (BME 6762)

B. IB-Environmental Science (IB-ES)-specific degree requirements

1. All IB students are required to complete a minimum of three elective courses (nine credits). Students enrolled in the IB-ES concentration must complete at least one course from each of the two focal areas below. Completion of these courses may be used

toward fulfillment of the 9-credit Integrative Biology elective requirement. Courses designated as proficiency or remedial (4,000 level or below) may not be used to satisfy the Integrative Biology course requirements.

Statistics and Modeling
Experimental Design and Biometry (PCB 6456)
Modeling Groundwater Movement (GLY6836)
Ecological Modeling (EVR 6070)
Ecological Theory (PCB 6406)

Ecology and Earth Sciences
Biogeography (GEO5305)
Plants and People (GEO 6317)
Environmental Restoration (EVR 6334)
Flora of South Florida (BOT 5155)
Flora of South Florida Lab (BOT 5155L)
Coastal Plant Ecology (BOT 6606)
Coastal Plant Ecology Lab (BOT 6606L)
Conservation Biology (PCB 6045)
Marine Ecology (PCB 6317)
Advanced Ecology (PCB 6046)
Marine Ecology Lab and Field Studies (PSB 6317L)
Freshwater Ecology (PCB 6307)
Freshwater Ecology Lab (PCB 6307L)
Symbiosis (BSC 6365)
Environmental Physiology (PCB 6749C)
Marine Geology (GLY 5736C)
Advanced Topics in Applied, Coastal and Hydrogeology (GLY 5934)
Regolith Geology (GLY 6707)
Coastal Environments (GLY 6737)
Shore Erosion and Protection (GLY 5575C)
Global Environmental Change (GLY 6746)
Environmental Geophysics (GLY 6457)
Methods in Hydrogeology (GLY 6838)
Natural History of Indian River Lagoon (OCB 6810)
Marine Global Change (OCE 6019)
Seminar in Ichthylogy (ZOO 6459)
Marine Invertebrate Zoology (ZOO 6256)
Marine Invertebrate Zoology Lab (ZOO 6256L)
Natural History of Fishes (ZOO 6456)
Natural History of Fishes Lab (ZOO 6456L)
Seminar on Emerging Topics in Avian Ecology (ZOO 6544C)
Chemistry for Environmental Scientists (CHS 6611)
Environmental Geochemistry (GLY 5243)
Physiology of Marine Animals (PCB 6775)
Introduction to GIS in Planning (URP 6270)
Principles of Geographic Information Systems (GIS 5051C)
Applications in Geographic Information Systems (GIS 5100C)
Programming in Geographic Information Systems (GIS 5103C)
Remote Sensing of the Environment (GIS 5038C)
Digital Image Analysis (GIS 5033C)
Advanced Remote Sensing (GIS 6039)
Hyperspectral Remote Sensing (GIS 6127)

IV. OTHER PROGRAM REQUIREMENTS

A. Initial course of study

Within this document, a *year* is always defined as a series of three consecutive semesters (which must include one Fall term, one Spring term and one Summer term). Summer enrollment is not mandatory. However, three consecutive semesters constitutes a *year* regardless of whether or not students enroll during the summer semester within that year.

1. Supervisory Committee (formed in the first semester of Year 1):

- The Supervisory Committee shall consist of at least three members, including the Ph.D. Supervisor, whose responsibility is to advise the student on the initial course of study. Student and mentor/supervisor pairing is based on mutual agreement.
- The Supervisory Committee shall be established before the end of the first semester of the program (Year 1, Semester 1).
- The student's Ph.D. Supervisor will be the chair of the student's supervisory committee and will consult with the student on the other members of the committee.
- For new students without a confirmed Ph.D. Supervisor (i.e. students participating in laboratory rotations), the IB Program Director or one of the Associate Director(s) will serve as a temporary supervisor to help identify appropriate courses to be taken. All students who enter the program without a confirmed Ph.D. Supervisor are required to participate in at least two laboratory rotations within Year 1 of the program (and so will initially be supervised by the Director/Associate Director).
- At least three members of the supervisory committee must be official members of the appropriate Program Faculty group. Students participating in an Integrative Biology concentration must identify supervisory committee members who are members of the appropriate concentration-specific Program Faculty list. For example, students enrolled in the IB-N concentration must identify at least three supervisory committee members who are official members of the IB-N Program Faculty. Students enrolled in core IB or the IB-ES concentration must identify at least three supervisory committee members who are official members of the IB Program Faculty.
  The supervisory committee shall meet at the end of Year 1and evaluate the student's progress. This meeting will be documented on the Milestones Checklist which must be submitted before the FALL semester of Year 2. The Milestones Checklist can be found within the **Forms and Policies** section of the Biology Department website. These documents enable the Program, the College of Science Dean of Graduate Studies and the FAU Graduate College to monitor students' progress through the program. NOTE: Updated Milestones Checklists must be completed and handed-in prior to the beginning of each Fall semester. Failure to do so will put the student's standing in the program at risk.
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2. Laboratory Rotations, identification of Ph.D. Supervisor, and pre-candidacy research credits

- Research conducted **prior** to candidacy:

- All new incoming students who do not have a Ph.D. Sponsor Verification form on file are required to register for **IB Lab Rotations (BSC 6905)** in the first semester. In the second semester of the first year in the program students can either continue to do lab rotations until the end of year 1, term 2, or can register for **Advanced Research in Integrative Biology (BSC 7978**) with approval of their identified supervisor. Students are encouraged to select the laboratory in which they will complete their dissertation research by the beginning of Year 1 Semester 2 but may continue to participate in rotations until the end of that semester. All students **must** have an identified and approved Ph.D. Supervisor by the end of Year 1 (by the end of the third consecutive semester in the program) at the latest. Students who do not confirm a Ph.D. Supervisor by the end of the second semester may lose their Semester 3 TA eligibility but, in accordance with the Graduate College rules, have the duration of Semester 3 in which to confirm a Ph.D. Supervisor. Students who do not confirm a Ph.D. Supervisor by the end of Year 1 Semester 3 will be dismissed from the program.

- Procedure for laboratory rotations and identification of a Ph.D. Supervisor:
  - Participation in **three to four laboratory rotations**, one-half of a semester each (eight weeks), within Year 1 provides opportunities for faculty and students to meet without making a long-term commitment. Rotations allow the students to be exposed to a broader range of science, to network within the program, and to help the student make a well-informed choice of laboratory and supervisors for their dissertation research. By trying out several laboratories, students can identify an area of research in which they are particularly interested, and a faculty member with whom they can develop a productive mentor-mentee relationship.
  - During rotations, students should participate in all laboratory activities, like any other lab member: they should join in lab meetings, journal clubs, etc. The student may be assigned to work with another student or postdoctoral fellow in the laboratory, or take on a simple project achievable within the rotation period. Students are expected to organize their rotations as soon as possible, preferably during the summer before the first semester or at the latest by the end of the first week of the first semester.
  - The IB program Associate Director(s) will help students to schedule rotations based on their interests and on faculty availability however **the onus is on the student to identify faculty of interest for review with the Associate Director(s) and then communicate directly with approved faculty regarding arranging a rotation**.
  - All students enrolled in IB Lab Rotation are enrolled under the Associate Program Director who is responsible for inputting their rotation grade at end of term.
  - Rotations are graded "S" or "U" ("Satisfactory" or "Unsatisfactory").
  - The rotating student is required to complete and submit a **Student Rotation Evaluation Form** for each rotation in which they have participated at the end of that rotation. Failure to submit those forms will result in a grade of "I" ("Incomplete") in IB Lab Rotation credits. University policy states that a student may not graduate from a FAU program with a grade of "I" ("Incomplete") on their transcript. If a grade of incomplete is not remedied within one year of issue, the "I" grade automatically converts to a grade of "U". Receipt of an "Unsatisfactory" grade jeopardizes a student's standing in the program.
  - Each faculty member with whom a given student rotated will also be required to complete and submit to the Associate Program Director an evaluation of the student's performance in the rotation via a **Faculty Rotation Evaluation Form**. These forms are

used by the Associate Director for the purpose of assigning each rotating student a grade (Satisfactory, Unsatisfactory, or Incomplete) in IB Lab Rotation at the end of each semester during which they have rotated.

B. Advancing to candidacy

Dissertation Committee: (formed at minimum one semester before candidacy exam OR no later than the end of Year 2 Semester 2)
Once students have confirmed a Ph.D. Supervisor they shall continue their courses as well as research by registering for **Advanced Research in Integrative Biology BSC 7978**. After a sufficient amount of research has been completed, as approved by their Ph.D. Supervisor and/or supervisory committee, the student shall form their Dissertation Committee. The Dissertation Committee is responsible for guiding development of the dissertation research and written proposal as well as administering the proposal defense and dissertation defense. Students must consult with their Ph.D. Supervisors in selecting their committee members but the final composition of the dissertation committee is established by the student.

Requirements for Composition of the Dissertation Committee:

- The Dissertation Committee shall consist of at least **FOUR** members, including the chair.
- All four members of the Dissertation Committee must have a Ph.D. Non-Ph.D. members can serve as consultants or as *ad hoc* (non-voting) members, in addition to the other four members. Per the FAU Graduate College, *ad hoc* committee members may not sign on formal documents related to the candidacy exam or the dissertation defense.
- Three of these members can be the same as those on the supervisory committee.
- At least three of these members must be regular FAU faculty.

All formal members must be members of the FAU Graduate Faculty. *Ad hoc* participants need not be Graduate Faculty members however, as stated above, they may not sign on program-related documents for students whose committees they are serving on.

- At least three members must be Program Faculty of the appropriate concentration within the IB Ph.D. program. See the Program website for concentration specific faculty lists.
- One member should have expertise outside of your immediate area of research.

Students may have additional members beyond the required four. Additional members above the four required may be internal (to FAU) or external (affiliates). Additional members need not be members of the Program Faculty. However, per the FAU Graduate College, additional committee members who are not FAU Graduate Faculty may only serve in an *ad hoc* capacity. Should outside expertise be required or desired on your committee, procedures are in place to formally grant non-FAU faculty FAU Graduate Faculty status so that they may participate as full members of the dissertation committee. If this applies to you, see your Program Coordinator for details of the process.

C. Defense of dissertation proposal (candidacy examination)

- **Timing:** It is strongly recommended that the dissertation proposal be defended by the end of Year 3 Semester 1 **but must be defended no later than the end of said semester** (where Year 3 Semester 1 would be the third fall semester for a student who matriculated in a Fall term – e.g. Fall 1, Spring 1, Summer 1, Fall 2, Spring 2, Summer 2, **Fall 3**). **If the student has not defended by the end of Year 3 Semester 1, they have automatically failed their first opportunity to pass the candidacy exam.** In accordance with the Graduate College rules, students who fail the candidacy exam shall have one more semester to pass and so must pass before the end of Year 3 Semester 2. If a student fails to propose by the end of Year 3 semester 2 or is unsuccessful on the second attempt, the student shall be dismissed from the IB Ph.D. program. Students without a defended and approved proposal by the end of Year 3 Semester 1 may lose their TA eligibility.

- **Requirement for a dissertation proposal:** Students must hold at least one committee meeting prior to submitting the research proposal to the dissertation committee. This meeting must be held at least one month in advance of the oral proposal defense. Your Ph.D. Supervisor and/or your dissertation committee **MUST** agree that you are ready to defend your dissertation proposal. The dissertation proposal shall consist of two parts, a written proposal and an oral proposal defense. However, a student's Dissertation Committee may specify other requirements as part of the candidacy exam.

  - **Written dissertation proposal:** The student shall submit a research proposal for review by the student's Dissertation Committee **at least two weeks prior** to the oral defense with a copy to the Program Coordinator. Failure to do so may result in a delay of the oral defense. The proposal shall be written in the format and structure specified in the IB guidelines (see VI. Proposal guidelines as laid out in detail in the Scientific Communication course (BSC 6846) unless the Dissertation Committee unanimously decides on another format. Students complete Scientific Communication (BSC 6846) in the Spring semester of their second year; this course trains students in the proposal writing process. Finally, the student must seek guidance from his/her Ph.D. Supervisor with regard to the content of the proposal before submitting it to the Dissertation committee.

  - **Oral dissertation proposal defense:** The student will be required to present a proposal seminar that is open to the public. This will be followed by a private defense with the Dissertation Committee in which the student's proposed research and relevant scientific background will be explored in a comprehensive oral format. The committee may request modifications of the written proposal with or without a repeat of an oral defense before final approval.

  - It is the student's responsibility to make a room reservation for the defense through their designated program coordinator. Room reservation requests must be emailed to the appropriate program coordinator at least two weeks prior to the scheduled defense date. Requests should include the following information:

    - The date, time and campus on which the seminar will be held
    - Room capacity needs
    - Requests for specific desired locations (e.g. Departmental videoconference rooms SC-141, RE-201, DW421)
    - Equipment needs (e.g. will you use your own laptop or the computer present within the seminar room?)

- Videoconference needs (e.g. will the event be video conference? If so, differentiate between the originating and receiving sites)
  - It is expected that students will ensure that their seminar is accessible (via videoconference) on at least three of the four FAU campuses on which the department resides.
- Off-campus/external connection/skype needs (with phone numbers and email addresses for appropriate IT staff at non-FAU locations and or individuals wishing to join the meeting via skype or conference call).

- It is the student's responsibility to ensure that the proposal seminar announcement is emailed to all IB faculty and students at **least one week prior** to the proposal seminar. The announcement should be sent to the program coordinator who will forward it to the relevant parties. If unforeseen circumstances prevent the proposal defense announcement from being sent out on time, there is a 24 hr grace period. If the announcement is not received by the program coordinator within the 24 hr grace period, the candidate must re-schedule the proposal defense. The candidate must also post physical fliers within the biology buildings on the campuses to which the seminar will be broadcast. The physical fliers must also be posted one week prior to the proposal seminar.

- **Students who fail the candidacy exam shall have one additional semester to pass. If unsuccessful the second time, the student shall be dropped from the IB Ph.D. program.**

- Successful defense of the oral and written proposal shall qualify the student for candidacy, contingent upon satisfactory completion of the core and elective course(s) requirements. Students MAY propose and defend before completion of the course requirements, **but formal advancement to candidacy will be delayed until core course requirements are satisfied.**

D. Administrative responsibilities for advancement to candidacy

NOTE: Students will NOT advance to candidacy unless they have fulfilled the following administrative duties:

- The Chair of a student's Dissertation Committee must email the Program Coordinator(s) confirming that the student has been approved to schedule the proposal defense and providing the defense date.
- Students must complete and submit to their program coordinator:
  - an updated milestone checklist,
  - a Form 8 - FAU Admission to Candidacy for the Doctoral Degree (available on the FAU Graduate College website),
  - a copy of the proposal announcement and of the written dissertation proposal.
- Students must provide a Proposal Assessment Form to each of their Dissertation Committee members. These forms are to be filled out by each committee member and submitted directly to your Program Coordinator. The forms are confidential and should not be returned to the student by members of the committee.
- The program coordinator will forward the Form 8 to the College of Science Dean for Graduate Studies and then on to the Graduate College. Upon receiving final approval from the Dean of the Graduate College, a student is admitted to candidacy.

- Once admitted to candidacy, students may register for dissertation credits but **this must be done via the program coordinator.** Note: in order for students to enroll in dissertation credits during the subsequent semester, the Graduate College must receive the signed Form 8 by the appropriate deadline specified on their website for the given semester in which the candidacy exam is taken. Students must also allow at least one week each for processing of the form at the Department level and then at the College level. Therefore, the Form 8 must be submitted to the program coordinator at least 2 weeks prior to the deadline specified by the Graduate College for submission of the Form 8 during a given semester.
- **Students should submit their first annual research progress report within one month of admission to candidacy.**

Note: All of these forms are accessible online through the biology website. See the Forms and Policies section of the webpage.

E. Dissertation research and defense of the dissertation

NOTE: A minimum of two semesters must elapse between the candidacy exam and the dissertation defense. This is due to the program requirement that students complete a minimum of 25 dissertation research credits and the limitation that a student can take no more than 12 dissertation credits per semester.

- Dissertation research shall be conducted under the guidance of the student's Dissertation Committee. Students shall meet with the Ph.D. Supervisor and other committee members on a regular basis (at least once a year) as the dissertation research proceeds.
- After each annual meeting, the student and the Ph.D. Supervisor **shall submit an annual progress report (**See the Forms and Policies section of the webpage**)** approved by the Dissertation Committee via the Program Coordinator to the Program Director and Associate Director(s). **In the absence of an annual progress report**, **a TA contract for the next semester will not be approved and students will not be allowed to register for any further course or research credits.**

- The Ph.D. Supervisor and the Dissertation Committee **MUST** agree that a student is ready to defend their dissertation prior to scheduling of the oral defense seminar.
- A written dissertation that follows FAU guidelines for formatting must be submitted for review by the student's Dissertation Committee with a copy to the Program Coordinator **at least one month prior** to the oral dissertation defense.
- It is permissible to use published work as chapters provided their insertion follows FAU formatting guidelines (see the Graduate College website for FAU dissertation formatting guidelines).
- Ph.D. students are expected to publish the results of their research on an ongoing basis. **For students participating in the IB-Neuroscience concentration, at least one peer-reviewed publication (if not published, an acceptance letter of the journal is required) with the student as first/main author is required for graduation.**
- The candidate must announce his/her defense dissertation at least **two weeks** in advance in the form of a flier sent via email through the program coordinator. The student must also submit the room reservation request for the defense seminar at this time or earlier (providing the same information specified in section C. Defense of dissertation proposal (candidacy exam)).
- The results of the dissertation research shall be presented in a public forum to which

faculty members, IB students and other interested parties are invited.

- Following the public seminar, the candidate shall defend the dissertation in a closed meeting with the Dissertation Committee.
- The Program Director or the Associate Director(s) or other assigned representative of the Program may serve as an observer at the defense.
- At the meeting following the public seminar of the dissertation research, the Dissertation Committee shall vote on approval of the dissertation. All members of the committee must vote in favor of passing the student. A single dissenting vote will result in the Graduate College denying the student's application to graduate. *Ad hoc* members do not have a vote on the dissertation defense.
- Successful defense of the proposal, completion of all other academic requirements, and formal submission of the approved dissertation to the Office of Graduate Studies constitute completion of the requirements for the IB Ph.D.
- Students who have completed all requirements stated above shall inform the program coordinator and leave a future contact address.

NOTE: Students will NOT graduate unless the following administrative duties have been fulfilled:

- Students must inform the program coordinator of their intention to graduate and submit an Application for Degree.
- Students must have an approved Plan of Study on file with the Graduate College and their registration status throughout their program must align with their Plan of Study. If necessary, students should revise their Plan of Study such that it reflects their historical enrollment status prior to graduation. Students who do not update their Plan of Study will not pass the final Graduation Audit conducted by the Graduate College and will not be allowed to graduate. Additionally, students may be deemed ineligible for tuition benefits should their Plans not reflect their enrollment.
- For FAU dissertation formatting guidelines, students must consult the Graduate College Graduate Thesis and Dissertation Guideline requirements. Students are strongly encouraged to attend the Graduate College workshops on Thesis/Dissertation formatting.
- Students must consult the academic calendar and the Graduate College Graduation Deadlines for the dates of the following graduation-related deadlines:
  1. Application for degree
  2. Revision to Plan of study
  3. Submission of doctoral dissertation, transmittal memo and signature page Electronic dissertation upload

Students are expected to submit research findings for publication in scientific journals on a continuing basis.

*It is generally expected that the students graduate **within** five years. Students not finished in five years will have their matriculation in the program re-evaluated and must petition for continuance.*

V. eMAIL: The FAU email system must be used for all communication within the program.

VI. DEADLINES: Students themselves are responsible for meeting deadlines.

APPENDIX A. PROPOSAL GUIDELINES

A. Format specifications

Font

- Use an *Arial 11pt, Times New Roman 12 points* (symbol font for Greek letters etc).

Page Margins

- Use *standard size (8 ½" x 11")* sheets of paper.
- Use 1 inch margins (top, bottom, left) and 1.5 inch margin on the right for all pages.

Page format

- Single-sided pages, one column.
- 1.5 line spacing.
- Consecutively numbered pages throughout the application. Do not use suffixes (e.g., 5a, 5b).
- Do not include unnumbered pages.

Proposal length

- No more than fifteen pages single-spaced text total (not including figures, legends or references) but it should be submitted in a 1.5 line spaced format.

Figures, Graphs, Diagrams, Charts, Tables, Figure Legends, and Footnotes

- You may use a smaller type size (10 or 11 pt) but it must be in black ink, readily legible, and follow the font typeface requirement.

Reference style

Please refer to the Publication Manual of the American Psychological Association (5th ed.) for all citation and reference instructions. Cite in the text alphabetically by author and date, for example: (Hay, 1985; Shimamura & Jurica, 1994). Reference examples are as follows:

Journal:
Shimamura, A.P., & Jurica, P.J. (1994). Memory interference effects and aging. Findings from a test of frontal lobe function. Neuropsychology, 8, 408-412.

Book:
Hay, D. A. (1985). Essentials of Behavior Genetics. Melbourne: Blackwell Scientific.

Book Chapter:
Connolly, J.B., & Tully, T. (1998). Behavior, learning and memory. In D.B. Roberts (Ed.), Drosophila: A Practical Approach (pp. 265-391). New York: Oxford University Press

B. Layout specifications

Proposal Structure

Each proposal should have the following sections in the order listed below:

1. Face Page
2. Title
3. Abstract
4. Specific Aims

5. Background and Significance Preliminary Data
6. Experimental Design & Methods
   Each Research Aim should have a section describing:
   a. Rationale
   b. Experimental Design
   c. Anticipated Results, Pitfalls and Alternatives
7. References
8. Figures & Figure Legends (at the end of the proposal or inserted into the text).