

Handbook

MS in Integrative Biological Diversity (IBD)

CSCU Joint Program

Department of Biological and Environmental Sciences, WCSU

Department of Biology, SCSU

Department of the Environment, Geography & Marine Sciences, SCSU

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The MS in Integrative Biological Diversity develops environmentally-responsible stewards who can apply scientific thinking to conserve biological resources, manage biodiversity, and address the concerns of stakeholders.

I. Program Overview and Mission

The Master of Science (MS) degree in Integrative Biological Diversity (IBD) blends the biological and environmental sciences with current social issues in order to train students to assess, manage, and think critically about biodiversity issues. The IBD degree combines graduate courses with faculty expertise across the Connecticut State Colleges and University (CSCU) System. Students have opportunities to collaborate with partnering organizations to engage in real-world practice. This program is suitable for secondary education teachers, current environmental science professionals, and others who are interested in a graduate-level biology degree that focuses on the ecological, physiological, and natural history of biological organisms.

Students can enroll as part-time or full-time (9 credits) students. Students currently take courses at Western Connecticut State University (Department of Biological and Environmental Sciences) and at Southern Connecticut State University (Department of Biology and/or Department of the Environment, Geography & Marine Sciences). Students can select a thesis or non-thesis option.

A. Program Objectives

Students in the MS in Integrative Biological Diversity program will:

1. apply the use of technologies (e.g. molecular methods or geographic information systems) to assess biological diversity and/or environmental health.
2. examine, quantify and describe organismal diversity across temporal and spatial scales (e.g. using geographic or phylogenetic analysis)
3. communicate with stakeholders about critical issues surrounding biodiversity (e.g., climate change, sustainability, emerging infectious diseases).

B. Program Learning Outcomes:

The MS in Integrative Biological Diversity will produce professionals who

1. can define diversity, and identify and describe the interconnections of organisms that are the result of millions of years of coexistence and adaptation,
2. are able to measure and monitor biodiversity using fundamental ecological techniques as well as in spatial and temporal dimensions,
3. are able to analyze, and describe the adaptive relationship between form and function and mechanisms that control this relationship, and
4. apply their skills and knowledge to maintain biodiversity through policy, sustainable development, and stewardship.

C. Admission Requirements

A student wishing to obtain a MS in Integrative Biological Diversity must hold a baccalaureate degree in biology, environmental science, or related discipline. The program welcomes students from diverse educational backgrounds (including non-science majors) who have experience working with or have completed previous coursework in biodiversity. The applicant should have an undergraduate cumulative average of at least 3.0 on a GPA scale of 1 – 4 or a recommendation from the graduate *Program Liaison*. Prospective students must submit all undergraduate transcripts and a 500 - word essay explaining why they would like to join the program. The *Program Liaison* will review the student application packet (i.e., audit courses for appropriateness) to assure program is a good fit for student. Applicants must schedule an interview with the respective school *Program Liaison* to discuss applicant's interest and the applicant's career goals. *Program Liaisons* from each school will recommend applicants for admission into the *Joint Program* (15 per department, per year). Students can enroll full-time or part-time, but only full-time students who successfully complete the stewardship seminar are eligible for graduate assistantships and/or grant-funded training fellowships. The deadline to submit application for Fall admission is March 15.

For students interested in focusing their course work or thesis with faculty at Western Connecticut State University, all application materials should be forwarded to the Office of Graduate Admissions, Western Connecticut State University, 181 White Street, Danbury CT 06897 or sent as an attachment to graduateadmissions@wcsu.edu. Students interested in focusing their course work or thesis with faculty at Southern Connecticut State University should forward all materials to the Office of Graduate Admissions, Southern Connecticut State University, 501 Crescent Street, WT 107, New Haven, CT 06515 , or sent as an attachment to gradadmissions@SouthernCT.edu.

International students are subject to all requirements for admission by the Office of Graduate Admissions and all program requirements. In addition, to be considered for admission, each international applicant must submit a completed "Application for Admission to Graduate Study" form and meet the following requirements:

- Hold the foreign equivalent of a United States bachelor's degree from a regionally accredited institution of higher education with an undergraduate grade point average of at least "B." (On various grading scales this would be at least 3.0 on a 4.0 scale, 14 on a 20 point scale, 80.0 from Chinese institutions, 1st Class or Division from Indian institutions, and upper 2nd Class Honors from British systems. Other grading systems will be evaluated on receipt of transcripts and certified evaluation of those transcripts.)
- Present certified copies and certified English translations of all academic achievements in each college or university attended. A diploma is not sufficient. The complete record of courses and marks earned and/or record of subjects and examination results must be

received. Documents presented by applicants must detail the award of either bachelor 's degree or equivalent or a graduate degree.

- Provide a certified evaluation of foreign transcripts and credentials (course by course with grades) from World Education Services; Josef Silny & Associates Evaluators, Inc.; Global Credential Evaluators, Inc.; or Educational Credential Evaluators Inc. Applicants may utilize other agencies, provided they are members of the National Association of Credential Evaluation Services (NACES), in doing so the applicant assumes all risk of using an agency other than World Education Services; Josef Silny & Associates Evaluators, Inc.; Global Credential Evaluators, Inc.; and Educational Credential Evaluators Inc. Applicants are responsible for payment of fees charged by these agencies. Specific immigration- and visa-related inquiries can be emailed to WCSU's Donna Warner, International Services Coordinator, at warnerd@wcsu.edu or to SCSU's Michael Schindel, Assistant Director of the Office of International Education schindelm1@SouthernCT.edu.

D. Academic Progress and Advising

The MS IBD degree program currently is a collaboration among three departments and between two Connecticut State University Colleges (SCSU and WCSU). Each participating department will identify a tenure track faculty member to serve as a MS IBD *Program Liaison* (See II. A.). The MS IBD program must be advertised and included by all participating departments in their graduate program website, and the respective MS IBD *Program Liaison's* will be identified.

It is the student's responsibility in consultation with the *Program Liaison* of each school, and/or Program Director, to ensure that courses taken meet degree requirements. Courses taken without a *Program Liaison's* permission may not be approved for a degree. All students accepted by either Office of Graduate Admissions (SCSU or WCSU) must follow a program approved by a MS IBD *Program Liaison*. Substitute courses may replace required courses only if approved by the MS IBD Graduate Committee. This committee consists of school *Program Liaison* and the Program Director/Coordinator. Students must maintain a Cumulative GPA of 3.0, also required for graduation. Courses taken at WCSU or SCSU will be computed in the GPA. Courses transferred from other graduate programs will not be computed in GPA unless they have been approved by the MS IBD Graduate Committee.

Once a student has been admitted to the graduate program, the student must maintain his/her matriculation status by registering for courses or applying for graduate continuing enrollment (i.e., continued registration status). Otherwise a student must complete a Leave Of Absence form or Program Withdrawal form at their primary institution and inform the appropriate department *Program Liaison*. If a student is absent for three consecutive semesters, the student must reapply for admission to graduate studies. The student will be subject to any changes made in the program and may lose courses due to the required time limit for completing a program. If a matriculated student will miss more than two consecutive semesters, s/he may avoid losing

matriculation status by applying for a Leave of Absence from the program. The student will still be subject to the particular time limit for the program in which s/he is enrolled. The MS IBD degree must be completed within 6 years.

E. Grades

The MS IBD Program will follow the quality point system listed below to compute the GPA:

A = 4.00	C = 2.00	P = Pass (on Pass/Fail Option)
A- = 3.67	C- = 1.67	FP = Fail (on Pass/Fail Option)
B+ = 3.33	D+ = 1.33	AUD = Audit
B = 3.00	D = 1.00	INC = Incomplete
B- = 2.67	D- = .67	W = Officially Withdrawn
C+ = 2.33	F = 0.00	WF = Withdrawn Failing

NOTE: SCSU uses A+ however, the quality points for A/A+ is 4.0. Inasmuch as an A and A+ are valued exactly the same, and degrees are awarded on a quality point system, we see no discrepancy between SCSU and WCSU quality point grading practices.

- Course grades of D+, D, D-, or F may not be counted toward a graduate degree; however, they are included in computation of the GPA.
- The grade WF is computed in the GPA. It carries academic penalty. This grade is received when a student stops attending class without officially withdrawing or withdraws without the instructor's permission after the published date for withdrawing without penalty.
- The INC grade must be made up within one semester of the time the INC was recorded. If not completed within that time, the grade becomes an F unless the instructor recommends an extension of time for justifiable cause, the extension not to exceed one additional semester (fall, spring, or summer session). The only exception to this policy will be made for students making satisfactory progress while completing a thesis or research project. Such students are limited only by the time allowed (6 years) to complete their degree.
- The grades P or FP are not computed in the GPA. A student may choose or change a choice of this option up to the final day of the drop/add registration period for a semester. The choice or change must be made in the Office of Graduate Admissions.
- Students who choose to audit (AUD) receive no grade and no academic credit for that course.

F. Application for Graduation Deadlines

All students who expect to complete degree requirements by the end of the next semester or summer session must apply in advance for graduation to allow for the necessary degree audit of their credentials at the school they originally applied to (SCSU or WCSU). Application must be made by one of the following deadlines:

* For August Apply by February 1.

- * For January Apply by October 1.
- * For May Apply by December 1.

G. Withdrawal/Leave of Absence from University

Students who find it necessary to withdraw from their studies permanently, or for a limited time, should first contact the *Program Liaison* and then follow the formal withdrawal or Leave of Absence procedure by completing a form obtained from the respective Office of Graduate Admissions. A Leave of Absence will permit a return to studies without formal reapplication for admission, usually after an absence of no more than two consecutive semesters. Students on Leave of Absence should keep in mind the need to maintain their matriculation status and time frame for completion of the degree.

H. Attendance and Examination Policies

- Students are required to observe the attendance regulations announced by the instructors for those courses in which they are enrolled.
- Final examinations (cumulative examinations) may be given only in the time period scheduled for such tests by the registrar. Other types of tests may be given throughout the term so long as they are not final examinations.

I. Probation & Suspension

- Excellence in performance is expected of students engaged in graduate study. The student who is unable to maintain a satisfactory grade point average may be asked to withdraw from graduate study.
- Any graduate student whose cumulative graduate grade point average falls below 3.0 or “B” is automatically placed on academic probation. If, at the end of the following semester of enrollment, the student’s cumulative grade point average increases but remains below 3.0, the student may be continued on terminal academic probation for a maximum of one additional semester. At the end of that semester, the student must have a 3.0 cumulative grade point average, or be dismissed from the division by the academic dean of the student’s academic discipline for unsatisfactory academic performance. Semesters include fall, spring and summer.

J. Degree Requirements

MS in Integrative Biological Diversity requires the completion of a total of 30 graduate course credits in one of two options. Upper level undergraduate courses cannot be substituted for graduate courses. Every effort must be made to give MS IBD graduate students priority in graduate courses across schools. To avoid course overlap and scheduling conflicts, MS IBD

graduate courses at WCSU will be scheduled Monday and Thursday afternoon and evenings, and MS IBD approved SCSU graduate courses will be scheduled Tuesday, Wednesday, and Fridays. Every effort will be made to avoid overlap in Saturday field-labs. Accommodations for synchronous remote instruction may be provided for students that are working on thesis or stewardship projects in the field and cannot be in the classroom. Requests to *Program Liaisons* for accommodations for virtual attendance must be indicated in advance of registration. There are three required courses: Climate and Energy Course EVE559 (3 credits) at Southern, Stewardship Seminar Bio 505 (1 credit) hybrid WCSU course, and 2 credits of Applied Stewardship (Bio506) that partners students with partnering organizations or stakeholders for a stewardship project training experience. Students in Applied Stewardship (Bio506) must have a university faculty supervisor who will receive credit comparable to SIS/FDS (.222 per student for 2 credits). Students enrolled in Applied Stewardship will meet twice during the semester either in person (preferred) or over real-time video, and supervising faculty and external partners are invited to participate in these community building meetings (see attached course outline). These community meetings will be organized and facilitated by the Program Director/Coordinator unless supervising faculty prefer to organize and facilitate, at which case the Program Director/Coordinator will be invited to attend. Final applied stewardship reflections will be submitted in writing to respective liaison and Program Director/Coordinator for program assessment of stakeholders and the diversity of student training experiences.

Option 1: 27 credits of coursework, and 3 credits of stewardship.

Option 2: 21 credits of coursework, 3 credits of stewardship, 6 credits of thesis.

Students also must take courses from a minimum of two CSCU campuses and present at a scientific conference. If students cannot attend a professional conference, graduate students can present at WCSU Research Day (WRD) or Sigma Xi.

Master of Science in Integrative Biological Diversity

<u>Required courses</u>	9 SH
Hybrid Stewardship Seminar (WCSU/Bio 505)	1 SH
Applied Stewardship (WCSU/Bio506)	2 SH
Climate Change (SCSU/EVE 559)	3 SH
Technology Course (several options)	3 SH
	*
<u>Electives courses</u>	21 SH
Thesis Track	15 SH
Thesis Research (for thesis track only)	6 SH
or	
Non-Thesis Track	21 SH
	*
<i>Total Credits</i>	30 SH

All students will participate in an annual stewardship conference

II. Administrative Roles and Rules

The MS IBD degree combines graduate courses with faculty expertise between SCSU Biology Department and Environment, Geography & Marine Sciences Department, and WCSU Department of Biological and Environmental Sciences. To be effective the program requires efficient and effective regular communication between prospective students and collaborating departments, between departments and School Administrators, and among all three collaborating departments to assure programmatic goals are being met.

A. Roles and Responsibility of Program Liaison and Program Director/Coordinator (meetings).

Every collaborating department will identify a tenure track faculty member to serve as a MS IBD *Program Liaison*. *Program Liaisons* will receive 1 credit reassigned time per academic semester through their school for every 15 students enrolled in the program at the beginning of a given semester. The *Program Liaison* will review applications, and interview prospective students. The *Program Liaison* will be part of the MS IBD Program Graduate Committee, and attend semi-monthly MS IBD program meetings attended by *Program Liaisons* and Program Director/Coordinator. Prospective student applications will be shared among *Liaisons* and recommendations for program acceptance will be made to the Program Director/Coordinator. *Program Liaisons* will also inform their respective chairs of students accepted into program, and enrolled in courses of respective departments, and will update their respective departments on the status of the MS IBD program. Basically, it is the *Program Liaison's* responsibility to communicate program status to their department and represent the students' best interests (in their respective department), and advise them through degree completion.

Every five years The MS IBD Program Director/Coordinator will rotate between schools (SCSU & WCSU). The MS IBD Program Director/Coordinator can also serve as *Program Liaison*, but the primary responsibility of the MS IBD Program Director/Coordinator is to keep track of all enrolled students and their progress towards degree completion. This individual will receive 3 credits reassigned time per semester, through their school, for up to 30 students. This individual will keep track of course rotations, assure that required courses, organismal courses, and technology courses are regularly being offered among collaborating departments, is responsible for writing assessment reports (as requested by administration) with information and feedback provided by *Program Liaisons*. This individual keeps track of applied stewardship projects completed by students, and tracks all published research and broader impact products produced by student-faculty research. The Program Director/Coordinator continuously tracks and updates partnerships and collaborations that support the Applied Stewardship requirement. This individual also strategizes and facilitates the procurement of resources to support student projects, travel, and research, and helps organize annual meeting of graduate students. Finally,

this individual organizes a semi-monthly meeting with *Program Liaisons* and sets the meeting agenda.

B. Curriculum Approvals.

One of the benefits of this joint degree is the ability to leverage diverse graduate courses across the system to better meet the needs of students and the research interests of faculty. All courses included in the 3-year rotation must be aligned to the program Learning Objectives and Learning Outcomes. Based on faculty strength and interest, collaborating departments can suggest elective courses for the MS IBD rotation, and must indicate if the course is designated as an organismal (O), technology (T), or broad-based (B) course. Respective department minutes should reflect departmental approval of a course for rotation, and requests to include prospective courses in the MS IBD rotation. The respective *Program Liaison* will bring these course rotation requests to the MS IBD Program Committee for consideration (*Program Liaisons* and Program Director/Coordinator), and *Program Liaison* will share the final course rotation with collaborating departments. Final 3-year rotations will be published by October 1st (spring semester) and March 1st (summer and fall semesters) to properly plan for enrollment, recognizing that graduate students have priority in MS IBD jointly approved courses. Any curriculum changes to the program sheet must be approved by collaborating departments, and both SCSU and WCSU Graduate Committees.

C. Program Assessment Processes and Guidelines

Upon the successful completion of the program a student will receive a MS in Integrative Biological Diversity, which is a conservation biology degree (CIP Code: 26.1307). Diplomas will be conferred by the primary affiliated institution. Institutionally granted Graduate Assistantships (GA's) will be based on the number of full-time enrolled students at primary affiliated institutions, and granted to students primarily associated and registered at those institutions. Grant funded fellowships and scholarships will be reciprocally advertised and promoted in a joint fashion, and can be granted to any student enrolled in the joint program. Every May *Program Liaison* will report to the Program Director/Coordinator the number of applications, number of students accepted, and number of students enrolled in the program. They will also report the number of graduating students and the number of semesters (including summers) required for degree completion by student. An on-line exit interview and survey will be administered to every graduating student as part of programmatic assessment. As best as possible, the Program Director/Coordinator will work with respective institutional alumni offices to track career progress and job placement of students. These steps will assess the rate of program completion, and the program's impact on biodiversity career training.

Applied Stewardship Partners (regular review for additions and subtractions), Applied Stewardship projects and student summary/reflection of applied stewardship will be submitted by *Program Liaison* to Program Director/Coordinator, and saved in student files. *Program Liaisons* will track IBD student theses, and provide Program Director/Coordinator with copy of Master's Thesis, name of project, copy of the copyright release and record of project. A copy of

the Thesis will be stored in Creative Commons (WCSU has account), an open access database. Creative Commons permits quantification of thesis impact to broader outreach by recording the number of times a thesis is downloaded. Graduate student publications, media products, news releases, all deliverables that are MS IBD graduate student-based outcomes will also be recorded and tracked. These products permit the assessment and evaluation of the program impact to various stakeholders and broader impacts. An annual report will be written by the Program Director/Coordinator and shared with Administrators across collaborating schools.

D. Registration

The MS IBD program will share a common application. On that application a student will self-identify their primary school and department affiliation. *Program Liaisons* will be assigned to students by the graduate office of the respective University and their department Chair. Students will pay fees, apply for financial aid, and register at their primary affiliation, and *Program Liaisons* must be aware of students interested in registering in courses at secondary affiliation school and departments. Students will pay tuition at their primary affiliation school, and the primary affiliation institution will compensate the secondary institution for MS IBD students registered in courses at the secondary institution. *Program Liaisons* of primary affiliation institutions will communicate to *Program Liaison* at secondary affiliation of the number of students and their names so that they can be registered, and secondary affiliation school will bill primary affiliation school for these students enrolled in their classes.

Early course rotation availability, student advising, and program planning is key for proper financial management of the program across institutions. The availability of a published 3-year rotation permits students to map their courses during their initial meeting with their *Program Liaison*. This will help plan for MS IBD student's space in courses, and applied stewardship and faculty availability, and help assure that each school is properly compensated.

E. Advising Practices

Every fall and spring the MS IBD Program Director/Coordinator will provide a summary of the number of students enrolled between the two schools, whether students are enrolled part- or full-time, and the total number of credits they have enrolled in. It is the responsibility of the *Program Liaison* in each collaborating department to advise students and assure they are making satisfactory progress towards their degree. It is the *Program Liaison's* responsibility to work with students to identify an appropriate applied stewardship project and partner or partnering organization. Partnering Organizations will be listed on Joint Program Webpage.

III. Program Sheet (See Appendix)

IV. Three- year course rotation (TBA)