UF UNIVERSITY of FLORIDA

New SLO/Academic Assessment Plan Submission Form

Check one:

☒ New Certificate Academic Assessment Plan
☐ New Undergraduate Academic Assessment Plan
☐ New Graduate Academic Assessment Plan
☐ New Professional Academic Assessment Plan
☐ New Student Learning Outcome (SLO)

Major: CEG - QFS

College: AG

Effective term and year of implementation: Term: Spring Year:2015

IMPORTANT: If you are submitting an **Academic Assessment Plan**, please enter your plan into Compliance Assist, and then submit this form to the approvals submission site. Once we receive this form, we will download the plan for committee review. You do not need to restate the SLOs on this form because the SLOs are in the Plan. Instead, skip items 1-5 and go directly to items 7 and 8, the Department and College Contact Sections.

If you are submitting one or more new **Student Learning Outcomes (SLOs)**, please complete items 1 through 6.

1. Include the new SLO here:

2. Indicate the areas of the SLOs:
   Undergraduate: ☐ Content ☐ Critical Thinking ☐ Communication
   Graduate: ☐ Knowledge ☐ Skills ☐ Professional Behavior

3. What types of assessments will be used?

   ☐ Course-related Exam ☐ Capstone
   ☐ Final Paper/Project/Presentation ☐ Course Grades
   ☐ Course Assessments/Assignments ☐ Standardized Exam
   ☐ Other – please describe here

4. What assessment methods will be used?

   ☐ Rubric
   ☐ Single Faculty Member

☐ Other:

5. Who applies the method?

☐ Faculty Committee

☐ Single Faculty Member

6. Describe the individual student assessments and the assessment method that will be used to measure each SLO.

7. Department Contact

Name:Rhiannon Pollard
Telephone Number: 352-273-0184 PO Box:110410
E-mail Address:rhiannon-pollard@ufl.edu

8. College Contact

Name:Joel Brendemuhl
Telephone Number: 352-392-1963 PO Box:110270
E-mail Address:brendj@ufl.edu

School of Forest Resources & Conservation

Quantitative Fisheries Science Graduate Certificate

Mission Alignment

The SFRC is part of the University of Florida's Institute of Food and Agricultural Sciences with four missions: undergraduate education, graduate education, research and extension. Our programs provide: (1) a rich personal educational experience for students; (2) new discoveries and applications that enrich lives, communities and natural resources; and (3) lifelong learning opportunities for professionals, policy makers, landowners, youth and the general public. The Graduate Certificate in Quantitative Fisheries Science aims to address marine resource population dynamics, quantitative fisheries assessment, and use of quantitative models in fisheries management decision-making. This program directly supports and enhances our mission through providing education to individuals who might otherwise be unable to attend the University of Florida.

Student Learning Outcomes

At the conclusion of the Certificate program courses, students will be able to:

1) Apply theoretical and technical knowledge of quantitative (mathematical and statistical) sciences to fisheries research and management problems.

2) Design and conduct quantitative fisheries stock assessments.

3) Recommend fisheries management practices through analysis and synthesis of quantitative assessment results and management strategy evaluations.

Program Goals

Seventy percent of students assessed are expected to be considered "successful" (as determined through specific assessment methods described below) within each distinct outcome.

Assessment Timeline

Direct assessment of the Student Learning Outcomes is conducted in two of the required courses for the Quantitative Fisheries Science Graduate Certificate.

SLO	Assessed Fall
1	FAS6355C Case Study FAS6337C Lab Assignments
2	FAS6355C Case Study

	FAS6337C Lab Assignments
3	FAS6355C Case Study FAS6337C Lab Assignments

Indirect assessment as described below will be conducted during the final term of the student's pursuit of the Graduate Certificate.

Assessment Cycle

Student Learning Outcomes are assessed for students in the program during every offering of FAS6337C and FAS6355C, both offered annually in Fall semesters.

Assessment:	September-December – direct assessment
	Indirect assessment varies by student (final term)
Analysis and Interpretation:	January-February
Improvement Plans:	February
Reporting:	September

Methods & Procedures

Student Learning Outcomes are assessed using aggregated lab scores in FAS6337C Fish Population Dynamics and an Integrative Fisheries Case Study in FAS6355C Fisheries Management.

Assignment descriptions:

FAS6337C Fish Population Dynamics, 11 aggregated Lab Assignments

Assignment 1: Assessment of fish size structure in R; Assignment 2, part 1: Estimates of fish growth, fitting growth models in R; Assignment 2, part 2: Growth analysis AIC comparison of model parameters; Assignment 3: Total mortality estimation and comparison with ANCOVA in R, black crappie; Assignment 4: Estimating size at maturity and comparison of curves, white grunt; Assignment 6: Equilibrium yield per recruit model; Assignment 5: Fitting stock-recruitment curves, black crappie and walleye; Assignment 7, part 1: Stochastic age structured model with biological reference points; Assignment 8: Tagging study to estimate fishing mortality with Monte Carlo uncertainty analysis; Assignment 7, part2: Stochastic age structured models, continued; Assignment 9: Virtual Population Analysis

FAS6355C Fisheries Management, Integrative Fisheries Case Study

Students will develop an integrative case study on a fishery or a fisheries-related problem of their choice. Graduate students are encouraged to choose a cases study related to their research topic. The aim of the case study is to conduct and present and integrative-interdisciplinary analysis of the outcomes of a fishery, the factors that led to these outcomes, options for improving management (or sustaining positive outcomes), and generic lessons that can be learned from the case study. In the spirit of reflective practice, students will develop initial case study presentations for discussion in class, update and modify their presentations in the light of discussions and feedback, and then upload final presentations for grading. The presentations will provide a clear, integrative and concise assessment of the fishery problem, possible management responses, and any generic lessons that can be learned from this specific case. Statements are appropriately

supported by reference to publications, information from stakeholders, or personal observations. The presentation shows ability to synthesize and critically evaluate information.

Lab Assignments in FAS6337C will be averaged and median score percentages will be used to determine whether the outcome was met successfully (80% or higher). The Integrative Fisheries Case Study in FAS6355C will be scored separately from course grades for SLO assessment; instructor will use the following rubric:

Outcome	Criteria	2 Points	1 Point	0 Points
1	**Displays theoretical and technical knowledge of mathematical and statistical methods used in fisheries research.**	Explanation and discussion of available and/or employed statistical methods is included.	Technical and/or theoretical knowledge is inadequately explained or contains errors.	Statistical analysis methods discussion not included.
2	**Designs/conducts quantitative fisheries assessments.**	No errors in statistical analysis; relevant evidence from literature supports appropriate research design decisions.	Minor errors in statistical analysis; includes only one primary source with minimal citations.	Multiple errors in statistical analysis; flawed research design; no reference made to current research literature.
3	**Demonstrates understanding of management strategy implications of analytical results.**	Thorough recommendations for management practices; multiple dimensions of implications are addressed and explored.	Incomplete recommendations; discussion of implications is incomplete or includes only one dimension.	No management recommendations are made; no discussion of implications is included.

Scores of "2" are considered successful for rubric-scored assignments. For program evaluation purposes, 70% of students assessed are expected to be successful within each distinct outcome.

In addition to these direct assessments, students will be given a self-reflective survey to indirectly assess their perceptions of learning and confidence relative to intended outcomes. This assessment is triggered by the individual application to receive the Graduate Certificate at the end of the program. The surveys will be administered through Qualtrics with the option of anonymity and collected by Sandra Houder.

Data obtained through both direct and indirect assessments will be compiled and reviewed by the online programs office, Distance Education Committee, and Graduate Programs Committee in the School of Forest Resources & Conservation. Weaknesses identified and/or changes needed will be implemented directly and promptly via these groups.

Assessment Oversight

Name	Departmental Affiliation	Email	Phone
Rhiannon Pollard, Manager, Online Programs	SFRC	rhiannon-pollard@ufl.edu	273.0184
Sandra Houder,	SFRC	shouder@ufl.edu	846.0146

Program Assistant			