

**Fisheries and Aquatic Sciences
Core Competencies for Graduate Education**

Adopted by the Faculty, September 2005

Purpose

This document describes a set of core competencies considered essential to the success of graduates from Fisheries and Aquatic Sciences. The competencies apply to students in both MS and PhD programs. These competencies will be explicitly addressed in each student's program of study at UF through formalized coursework, independent study, thesis & dissertation research, and by interaction with mentors and peers.

Background

Competencies represent demonstrable behaviors that will yield success or a sustainable competitive advantage. They translate skills, knowledge and motivation into observable behaviors related to achieving success in a specific situation. In terms of teaching and mentoring graduate students in FAS, we consider key behaviors that students must demonstrate to be successful in their careers.



The relationships among skills, knowledge, motivation/attitude and competencies

Approach

The core competencies support a set of activities derived from a set of core careers. As a faculty we consider three core careers:

- 1) academics (from elementary school teacher through senior faculty member at a major university)
- 2) government agency (from technician through director)
- 3) private sector (from entry level through a leadership position in consulting firms, a non-governmental organizations, businesses or other organizations in the private sector)

We identify six core activities that include both skills and knowledge:

- 1) project management in the broadest sense, including using disciplinary knowledge to identify key "gaps" and the means to fill them, understanding and incorporating stakeholder inputs and personal motivation, obtaining and managing resources, establishing and tracking timelines, and evaluating progress and making necessary adjustments
- 2) project implementation in a broad sense, including application of disciplinary knowledge, safe and efficient use of field and laboratory techniques, quality assurance and control, collection and use of metadata, and collection and analysis of data
- 3) application of the scientific process; including recognizing philosophical foundations; using premises, reasoning and hypotheses to ask good questions; structuring sampling design, experimental design and other work logically; describing entities accurately; using statistics and other quantitative models appropriately; and integrating and applying components holistically and appropriately
- 4) critical thinking, including understanding and evaluating spoken and written communications, engaging in collegial discussion and debate, and applying self-correction
- 5) communication in all its varied forms, including formal and informal instruction, training, oral presentations, written reports, evaluations, and journal articles
- 6) application of life skills to achieve personal and professional success, including life-long learning, self-reliance, interdependence, teamwork, leadership, mentorship, and balancing demands.

Core competencies

Through coursework, independent study, thesis or dissertation research, assisting in courses, participating in extension programs, contributing to FAS activities and other means, we expect that students will demonstrate the ability to:

- 1) plan, track and adapt projects that deliver outcomes fit for purpose, on time and within budget
- 2) implement planned projects efficiently and effectively
- 3) distinguish science from other forms of endeavor, identify "good" science and apply science appropriately
- 4) evaluate information and formulate high-quality arguments, both in verbal dialogue and in writing
- 5) identify and meet the need to learn about new fields
- 6) communicate effectively to a variety of audiences through oral presentations and written materials
- 7) balance competing demands
- 8) interact effectively as a student, mentor, team member, leader and member of FAS.