

Ongoing

Define Goal:

Program Goal 4: The Department of Biology will make significant progress toward increasing diversity.

Intended Outcomes / Objectives:

Goal 4 - The Department of Biology will make significant progress toward desegregation and affirmative action objectives.

Student Learning Outcome 1

Progress: Ongoing

Define Goal:

Student Learning Outcome 1: Undergraduate Wildlife and Fisheries Science majors will demonstrate improved critical thinking skills.

Intended Outcomes / Objectives:

Student Learning Outcome 1 - Our goal is for departmental faculty to select critical thinking 50% of the time as important or essential.

Student Learning Outcome 2

Progress: Ongoing

Define Goal:

Student Learning Outcome 2: Wildlife and Fisheries Science majors will participate in extracurricular activities related to their discipline.

Intended Outcomes / Objectives:

Student Learning Outcome 2 - Our goal is to have at least 25% of all Wildlife & Fisheries Science majors participate in extracurricular activities related to their discipline.

Student Learning Outcome 3

Progress: Ongoing

Define Goal:

Student learning Outcome 3: All students completing a degree in Wildlife and Fisheries Science at Tennessee Technological University will use scientific reasoning as codified by the structured process commonly known as the scientific method.

Intended Outcomes / Objectives:

Student Learning Outcome 3 - Our goal is to have a success rate of 100% on the Scientific Method Questionnaire for graduating seniors.

Student Learning Outcome 4

Progress: Ongoing

Define Goal:

Student Learning Outcome 4: Wildlife and Fisheries Science majors will be able to demonstrate a command of general biology and the general principles in the various areas in natural resources management.

Intended Outcomes / Objectives:

Student Learning Outcome 4 - Our goal is to have our students perform above average in the ACAT Major Field Examination.

Assessment - Goal 1

Goal/ Outcome/ Objective:

Cooperative programs (“co-ops”) or experiential internships will be completed by at least 25% of WFS students during their undergraduate years.

Type of Tool:

Graduating seniors are asked to complete a short questionnaire

Academic

2017. The five year averages for Biology in these categories were 15.0%

Table 8. Percent of Wildlife and Fisheries Science majors as minorities and females.

Year	Minorities (%)	Females (%)
2013	3.0	18.3
2014	3.4	18.5
2015	4.9	23.2
2016	2.8	25.7
2017	5.2	30.2

National Survey of Student Engagement NSSE data from 2011 and 2014 indicated that minority students represented 2% to 11% of first year Biology students, and 5% to 10% of Biology seniors, while fen

2016- 2017	22.2%	18.9%	66.7%
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Ext-Cur. Activities	97.1%	100.0%	94.7%	93.9%	94.1%
Clubs	74.3%	60.0%	89.5%	69.4%	67.6%
Internships	5.7%	0.0%	0.0%	14.3%	8.8%
Sp. Topics	31.4%	30.0%	36.8%	51.0%	50.0%
Sci. Mtg.	37.1%	40.0%	42.1%	22.4%	38.2%
Seminars	94.3%	80.0%	89.5%	87.8%	67.6%
Other	68.6%	20.0%	63.2%	40.8%	35.3%
Positive Contribution	88.6%	90.0%	94.7%	89.8%	85.3%

Results - Student Learning Outcome 3

Goal/Objective/Outcome Number:

All students completing a degree in Wildlife and Fisheries Science at Tennessee Technological University will have acquired abilities to use scientific reasoning as codified by the structured process commonly known as the scientific method.

Results:

Scientific Method Exams

Student understanding of the scientific method, as assessed using the Department of Biology Scientific Method Exam, was evident (Table 9). Results are consistent with long-term trends in the BIOL 1000 class that indicate that most of our freshmen students recognize the components of the scientific method and understand how to apply it. In general, upper division students in BIOL 3920 score higher than first-semester students. In the past, we concluded that reinforcement does occur throughout the program and that most senior students have retained some level of understanding of the process.

Table 9. Student performance (percent) on the scientific method exam administered to students in BIOL 1000 (freshman course) and BIOL 3920 (upper division).

Year	Average Score (%)		100% Correct (%)		> 90% Correct (%)		< 70% Correct (%)	
	1000	3920	1000	3920	1000	3920	1000	3920
2013-2014	81.3	86.5	13.3	28.4	33.3	42.9	26.7	13.2
2014-2015*	74.9	71.5	13.8	0.0	18.4	0.0	33.8	44.4
2015-2016	74.4	90.0	10.5	52.3	16.3	65.9	37.2	13.6
2016-2017	74.1	89.2	14.1	52.3	18.8	63.6	43.8	13.6
2017-2018	78.2	86.7	17.1	36.8	23.2	52.9	26.8	16.2

*Data from Spring 2014 only.

Results - Student Learning Outcome 4

Goal/Objective/Outcome Number:

Wildlife and Fisheries Science majors will be able to demonstrate a command of general biology and the general principles in the various areas in natural resources management.

Results:

ACAT Major Field Examination Senior WFS majors' scores (Table 10) on the ACAT subject exams were generally above national averages for general biology and general principles in the various areas in natural resources management. Scores on the forestry and wildlife subject area have varied from the 46th to 66th percentile over the last five years, and we consider this one of the most important areas of the exam.

Table 10. Results of the ACAT Wildlife and Fisheries Science Exam.

Year & Sample Size	Ecology		Invertebrate Zoology		Vascular Botany		Vertebrate Zoology		Forestry & Wildlife	
	Score	%tile	Score	%tile	Score	%tile	Score	%tile	Score	%tile
2013-2014 (n = 40)	466	37	461	35	545	67	497	49	541	66
2014-2015 (n = 31)	494	48	450	31	518	57	500	50	491	46
2015-2016 (n = 38)	499	49	438	27	533	63	525	60	506	52
2016-2017 (n = 49)	505	52	498	49	538	65	518	57	513	55
2017-2018 (n = 35)	516	56	478	41	494	47	470	38	505	52
AVG (n = 183)	496	48.4	465	36.6	525.6	59.8	502	50.8	511.2	54.2

Modifications and Continuing Improvement to Program Goal 1

Go!

Program Goal 3: The Department of Biology will increase undergraduate student retention.

Program Changes and Actions due to Results:

The fall to spring retention rate for the last academic year was below the university average, and over a five year period the Department of Biology has a fall to spring retention rate on average lower than the university rate. The department underwent a program review during the 2015-2016 academic year and retention was found to be "the envy of any department..." We will continue using our current methods to improve retention given our results.

Link to Assessment:

Even though we have been lauded for our retention rate by peers, we will need to assess our current methods to improve retention given our results.

Link to Flight Plan and Student Path

Modifications and Continuing Improvement to Program Goal 4

Goal/Objective/Outcome Number:

Program Goal 4: The Department of Biology will make significant progress toward increasing diversity.

Program Changes and Actions due to Results:

An ad-hoc committee of faculty members will be formed to address diversity issues.

The Department continually seeks out minority and women students an