

April 27, 2015

AY 2013-2014 Annual Report
Bachelor of Science in Biology; Bachelor of Science in Marine Biology
Bachelor of Arts in Biology

The Biology faculty developed the curriculum for the Bachelor of Science in Marine Biology/Biology that provides a solid foundation for students in biology with a strong core in either marine biology or general biology. It is a rigorous program that produces graduates ready to gain employment or pursue graduate study in biological and medical fields. The BS degree in Biology and the BS degree in Marine Biology are designed to serve the needs of three groups of undergraduate students. First, they are designed to serve students seeking entry-level employment in fields related to marine biology, wildlife management, and fisheries, including with state and federal agencies. Second, they are directed toward students preparing to enter postgraduate courses of study; either in graduate studies in the fields of oceanography, marine biology, ecology, evolutionary biology, and fisheries, or in medical or veterinary schools. Third, they are designed to serve students preparing to enter the M.A.T. program in secondary education at UAS, and thus reflect the requirements for certification in science. The BS degrees in Marine Biology and Biology are both designed to capitalize on the unique natural setting in Southeast Alaska. Many courses involve hands-on field and laboratory exercises. Independent research with a faculty mentor is encouraged.

We also have developed curriculum for a Bachelor of Arts in Biology that provides a broader liberal arts background and fewer analytical courses. This degree was designed to inspire students interested in the biological sciences but who are unlikely to pursue technical research careers the more classic science curriculum prepares for. The degree is also designed to serve students entering the M.A.T. program in secondary education.

Program Assessment Components

- 1) Data Collected on Program Students for AY 2010-2014
- 2) Evaluation of the Data
- 3) Exit Interviews with our Graduates
- 4) Biology Advisory Committee
- 5) Potential Future Changes

1) Data Collected on Program Students for AY 2010-2014

Program Student Head-counts (including pre-majors):

Academic Year	BA Biology	BS Biology	BS MarBiol	Total
2010/2011	26	63	62	151
2011/2012	32	64	63	159
2012/2013	38	63	68	169
2013/2014	34	57	60	151

Graduating Students

Academic Year	BA Biology	BS Biology	BS MarBiol	Total
2010/2011	2	8	4	14
2011/2012	0	3	4	7
2012/2013	5	5	10	20
2013/2014	4	6	6	16

Average GPA of Graduating Students

Academic Year	# of Students	GPA	BA Biology	BS Biology	BS MarBiol
2010/2011	14 students	3.06	2.89	3.03	3.03
2011/2012	7 students	3.03	NA	2.83	3.17
2012/2013	20 students	3.21	2.97	3.24	3.31
2013/2014	16 students	3.27	3.19	3.42	3.27

Exit Interviews

Academic Year	# Graduates	# Completed Interviews	Return Rate
2010/2011	17	2	11.8%
2011/2012	10	7	70.0%
2012/2013	22	6	30.0%
2013/2014	(exit interviews not conducted)		

Data from Exit Interviews 2012/2013

Number of respondents	6
Number of students that gained research experience	5
Satisfied with Program	6 either agree or strongly agree

2) Evaluation of the Data

We have seen an overall steady number of total program students since 2010, with some increases and decreases over that time. We have approximately the same number of students enrolled in, and graduating from, the BS Biology program as we have in the BS Marine Biology program.

In 2012/2013 we graduated a record number (20) of students in all programs, and saw a slight decrease to 16 students in 2013/2014. We have seen a steady number of students graduating with a BA in Biology. There are more program students this year seeking a BA in Biology than in the past and we will continue to watch this trend as we evaluate the value of this particular program.

UAS is an open enrollment university and many of our students do not maintain high grades through their academic career, which can be seen by analyzing the graduates' Grade Point Average (GPA). However, our most recent group of graduates (n=16) were strong students academically (GPA = 3.27), showing the highest average GPA in each of our programs over the

last four years. Students who opted for a BS in Biology tended to be academically the strongest among the three degree programs (3.42) following by students in the BS Marine Biology program (3.27) and those receiving the BA in Biology (3.19).

3) Exit Interviews with our Graduates

In 2012, we met personally with each of the graduates to ask them specific questions about our programs. In 2013, we were not able to interview students personally because of time constraints. We are currently conducting exit interviews of students for the 2014/2015 AY. We were able to obtain 6 out of 20 exit interviews for 2013 graduates (30% return). Most of these graduating students in 2013 felt that the Biology/Marine Biology program was strong and that they were more than adequately prepared for a career in the biological sciences. They unanimously felt that our program provided them strength in analytical, oral communication, critical thinking, and computer skills. Some of the students felt that our program could improve if we were to offer our classes more often or provide upper division courses during the summer. One student commented on his dissatisfaction with temporary faculty:

“My worst experiences at UAS occurred during periods of faculty exchange. For example my physics course was taught by a man hired for a single year approximately one week before the semester started. Likewise, my Bio 106 course was taught by a professor who was here only for a semester or two. Both of these courses felt like they were exercises in self-study. While I was/am unaware of why such situations occurred, I whole heartedly believe they should be avoided. These “temporary professors” used a syllabus and course materials prepared by someone else and as such were not prepared to teach the material. Overall these courses were of very poor quality.”

Students who responded to the exit interview expressed interest in more access to statistical classes. Two students expressed interest in year-long courses in organic chemistry and other students were interested in a course in wildlife biology, cell and molecular biology, and tropical biology. Another student would have liked to see us teach Latin.

Students reported that they would have been able to graduate sooner if we were able to offer more upper division courses.

4) Biology Advisory Meeting

In 2012, the biology faculty met with our new Biology Advisory Committee (BAC) for the first time to discuss our programs. The BAC is composed of external professionals from diverse agencies who have hired UAS students and are excited about our program. We formed the BAC in order to acquire external recommendations with respect to future faculty hires, curriculum changes, and any changes in program delivery. Our goal is to meet on an annual basis to provide updates of our programs (although we did not meet in 2014). The following people have served on the BAC.

- 1) Ginny Eckert: University of Alaska Fairbanks
- 2) Ron Heintz: National Oceanic and Atmospheric Administration
- 3) Forest Bowers: Alaska Department of Fish and Game

4) Bill Hanson: US Fish and Wildlife Service

Plans are currently underway to hold a BAC meeting in May/June 2015.

5) Potential Future Changes

The biology faculty have been tracking our graduates for over 10 years and we are satisfied that we provide a curriculum that prepares our graduates for diverse career choices. Feedback from students who have entered graduate school confirms that our courses are rigorous and relevant. It would be helpful if the Alumni Association had a mechanism in place to track UAS graduates better.

All of our required courses are offered on an annual basis and all of our Biology electives are offered every other year. Our enrollments in our required courses are strong with some courses maintaining a wait list. There is variation in the enrollments in our elective courses. We have initiated a course in Communicating Science (Tamone) that promises to enhance our students' exposure to written and oral communication used in the biological sciences. We have also initiated a course in Experimental Design and Data Analysis (Bergstrom) that has helped to fill a pre-existing gap in applied analysis of scientific data, and a new course in Marine Ornithology and Herpetology (Pearson) that provides marine biology students with an additional upper division elective with no lab. Most of our upper division courses have a laboratory component and we are evaluating the value of all of these laboratory experiences. We have removed the laboratory component from Biology 415 Physiology of Marine Animals (now BIOL 410). All of the Biology faculty offer undergraduates at UAS research experiences. There are always more students requesting research experience than we have faculty to mentor.

We still need faculty with expertise to teach Genetics and we will continue to propose new faculty recruitment to cover Genetics (Biology 362), Microbiology (Biology 240), and Oceanography (Biology 100 or an upper division course). We currently have a term faculty member (Fagan) teaching Biology 103 (Biology and Society), Biology 239 (Introduction to Plant Biology), Biology 105, and Biology 300 (Vertebrate Zoology) and a term faculty (Cox) teaching Biology 240 (Introduction to Microbiology). However, these are one-year term positions and we do not have the faculty available to teach these courses once the term positions expire. We most definitely have a full work load for a new faculty member and the program would benefit with such an investment.