April 14, 2017

AY 2015-2016 Annual Assessment
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 2011-2016
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 2011-2016

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
2014/2015	22	46	56	124
2015/2016	16	41	57	114

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
2014/2015	1	7	1	9
2015/2016	7	7	4	18

Average GPA of Graduating Students

Academic Year	# of Students	GPA	BA Biology	BS Biology	BS MarBiol
2010/2011	14	3.06	2.89	3.03	3.03
2011/2012	7	3.03	NA	2.83	3.17
2012/2013	20	3.21	2.97	3.24	3.31
2013/2014	16	3.27	3.19	3.42	3.27
2014/2015	9	3.06	2.79	3.14	2.18*
2015/2016	18	3.08	2.89	3.28	3.07

*2014/2015 GPAs are for all students enrolled in respective degree programs; other years' GPAs are for graduates only.

Exit Interviews

Academic Year	# Graduates	# Completed Interviews	Return Rate
2010/2011	14	2	14%
2011/2012	7	7	100%
2012/2013	20	6	30%
2013/2014	(exit interviews not conducted)		
2014/2015	9	5	56%
2015/2016	18	4	22%

Data from Exit Interviews 2015/2016

Number of respondents	4
Number of students that gained research experience	3
Satisfied with Program	4 strongly agree
Prepared them for a career in Biological Sciences	4 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. In 2015/2016 we graduated the 2nd highest number of students since 2010 (18), second to 20 students in 2012/2013. We expect the number of graduates to increase in 2016/2017 because of the number of seniors. Despite UA-wide decreases in enrollment, we continue to graduate a steady number of students in all 3 degree programs, although total student head counts have decreased slightly for the last two years.

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=18) were strong students academically (GPA = 3.08), consistent with higher than average GPAs in previous years in these programs. Consistent with previous years, students who opted for a BS in Biology tended to be academically the strongest among the three degree programs (3.28; n=7) followed by students in the BS Marine Biology (3.07; n=4) and BA Biology programs (2.89; n=7).

3) Exit Interviews with our Graduates

Over the last several years, we have tried to meet personally with each of the graduates to ask them specific questions about our programs, and to have them fill out a survey form about their experience. For 2015/2016 AY we received feedback from 4 of 18 graduates. All of these students 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. All three students that did undergraduate research rated the experience as 'excellent', and one suggested that we should make it a program requirement.

Some student comments on the program are below:

> "Any student who studies the books required in the Biology program and utilizes class time wisely will get a high quality education. The close proximity to nature and the potential one-on-one nurturing with faculty accents this at a seemingly unparalleled level."
>
> "Great, knowledgeable professors."
>
> "I learned a great deal about my field of study that will be practically useful to me."
>
> "Great job guys – I feel like I have received a quality education thanks to all your hard work. Thank you!"

The only negative comment on the surveys this year was a request to make the course sequencing known to students earlier so that they can plan ahead, and to inform more broadly about research and internship opportunities. We also continue to get complaints about the laptop computers that are available to them for labs and analysis for their independent projects, and wishes that they were updated or replaced due to frequent crashing and slow processing time. This has been an ongoing problem for many years now. We are in the process of replacing eight of the laptops with our 2016/2017 year-end funds.

4) Biology Advisory Meeting

In March 2017, we met with our Biology Advisory Committee for the first time since 2012, which included:

1) Megan McPhee: University of Alaska Fairbanks
2) Ron Heintz: National Oceanic and Atmospheric Administration
3) Forest Bowers: Alaska Department of Fish and Game
4) Michelle Kissling: US Fish and Wildlife Service

We will expand on the feedback and suggestion from that meeting more in our 2016/2017 Annual Assessment. Briefly, they all have hired or worked with our graduates and commended our students in their oral presentation skills, understanding of evolution, and relative research experience compared to students from other institutions. They all reached general consensus in the importance of the following in our UAS graduates:

1) skills in scientific writing, communicating science, and community outreach,
2) hands-on and face-to-face independent research experiences,
3) and encouraging students who intend to follow a research career to take a course in GIS, Experimental Design, Communicating Science, and BIOL 498.

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 annually or 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 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 that has helped to fill a pre-existing gap in applied analysis of scientific data, and a new course in Marine Ornithology and Herpetology 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 or volunteer positions in their labs. There are always more students requesting research or volunteer experience than we have faculty to mentor.

The 2015/2016 academic year brought about significant change in that we developed and will offer in Fall of 2017 an undergraduate BS degree in Fisheries and Ocean Sciences with an

emphasis in Fisheries Science, jointly offered with UAF. We will also offer an Emphasis in Marine Fisheries for students in the BS Biology, BA Biology, and BS Marine Biology programs. This coincided with continued funding from TVEP that has supported expanded recruitment efforts by our term Assistant Professor Keith Cox. We have increased our recruitment efforts also with the continued help from Admissions Representative Margo Connolly-Masson. Significantly, we hired a new fisheries tenure-track Assistant Professor, Dr. Michael Navarro, who began in Fall 2016, and who will contribute to teaching and research in our core programs as well as the development of our new Fisheries program.