**University of Hawai'i**
**Code Request Form for Academic Programs**

# NEW OR REPLACE PROGRAM CODE

☑ **New Program Code** ☐ **Replace Program Code** Date: February 24, 2022

## REQUESTOR CONTACT INFORMATION

| | | | |
|---|---|---|---|
| Name | Pheng Xiong | Campus | UH Manoa |
| Title | University Registrar | Email | pxiong@hawaii.edu |
| Office/Dept | Office of the Registrar | Phone | 808-956-5322 |

## NEW PROGRAM CODE TO CREATE

| | | | |
|---|---|---|---|
| Institution | UH Manoa | Campus | UH Manoa |
| Level | Undergradaute | Effective Term | 202310 |

| | Code (Max. Characters) | | Description | Check if requesting new code: |
|---|---|---|---|---|
| College | (2) | 14 | College of Natural Sciences | ☐ See Banner form STVCOLL |
| Department | (4) | SLSC | School of Life Sciences | ☐ See Banner form STVDEPT |
| Degree/Certificate | (6) | BA | Bachelor of Arts | ☐ See Banner form STVDEGC |
| Major | (4) | MB | Marine Biology | ☐ See Banner form STVMAJR |
| Concentration | (4) | | | ☐ See Banner form STVMAJR |
| Minor | (4) | | | ☐ See Banner form STVMAJR |

If a similar major/concentration code exists in Banner, please list the code:

Justification to warrant a new major/concentration code similar to an existing major/concentration code:

**See Attached Approved Memo**

Is this major/concentration code being used the same way at the other UH campuses? ☑ Yes ☐ No

Should this program be available for applicants to select as their planned course of study on the online application? *If yes, student may select the code as their only program of study.* ☐ Yes ☐ No

### RULES PERTAINING TO FINANCIAL AID AND 150% DIRECT SUBSIDIZED LOAN LIMIT LEGISLATION

Is 50% or greater of the classes in this program offered at a location other than the Home Campus? ☐ Yes ☑ No

Is this program/major/certificate financial aid eligible? ☑ Yes ☐ No

Does this certificate qualify as a Gainful Employment Program (Title IV-eligible certificate program)? ☐ Yes ☐ No

*See http://www.ifap.ed.gov/GainfulEmploymentInfo/index.html*

Program Length

*In academic years; decimals are acceptable. The length of the program should match what is published by the campus in any online and/or written publication.* 4.000

Special Program Designations ☐ A ☐ B ☐ N ☐ P ☐ T ☐ U

*See Special Program Designations Code Definitions on IRAO Program Code Request webpage*

Required Terms of Enrollment: ☑ Fall ☑ Spring ☐ Summer ☐ Extended

Form modified: Oct 20208

**University of Hawai'i**
**Code Request Form for Academic Programs**

# NEW OR REPLACE PROGRAM CODE

## EXISTING PROGRAM CODE TO REPLACE, IF APPLICABLE

| | | | |
|---|---|---|---|
| Program Code | | Program Description | |
| Institution | | Campus | UH Manoa |
| College | | Department | |
| Level | | | |

Are current students "grandfathered" under the program code? ☐ Yes ☐ No

Should the old program code be available for use in Banner? ☐ Yes ☐ No

**Effective** _____ **, old program code will no longer be available to admit or recruit students.**
**Term (ie. Fall 2020)**

*This will turn off the online application, recruitment (effects Banner forms SRASUMI and SRAQUIK) and admissions (effects Banner forms SAADCRV, SAAADMS, SAASUMI, SAAQUIK, and SAAQUAN) Banner modules.*

**Effective** _____ **, old program code will no longer be available to award degree to students.**
**Term (ie. Fall 2020)**

*This will turn off the general student (effects Banner form SGASTDN) and academic history (effects Banner form SHADEGR) Banner modules.*

## ATTACHMENTS

**BOR Approved:** Sole-credential Certificate, Associate, Bachelor and Graduate Degrees, and sole credential certificates

☒ BOR Meeting Minutes & Supporting Documents ☒ Curriculum

**Chancellor Approved:** Concentrations, Certificates and Associate in Technical Studies (ATS) Degree

☐ Memo from Chancellor to notify Vice President for Academic Planning and Policy regarding program action.

☐ Curriculum

**CERTIFICATES ONLY: Please check one (1) statement.** This certificate is a...

☐ BOR approved certificate. BOR Meeting/Approval Date: _____

☐ Chancellor approved within an authorized BOR program. BOR Program: _____

☐ Chancellor approved CO in accordance with UHCCP 5.203, Section IV.B.10.

## VERIFICATIONS

***By signing below, I verify that I have reviewed and confirm the above information that is pertinent to my position.***

| **Registrar** (Print Name) | **Financial Aid Officer** (Print Name) | **For Community Colleges, verification of consultation with OVPCC Academic Affairs:** |
|---|---|---|
| Pheng Xiong, University Registrar | Jodie Kuba | Tammi Oyadomari-Chun |
| Pheng Xiong Digitally signed by Pheng Xiong Date: 2022.02.24 16:31:17 -10'00' | Jodie Kuba Digitally signed by Jodie Kuba Date: 2022.02.24 18:09:05 -10'00' | |
| Signature Date | Signature Date | Signature Date |

## ADDITIONAL COMMENTS

See attached BOR memo.

Form modified: Oct 2020

UNIVERSITY of HAWAI'I® MĀNOA

UNIVERSITY OF HAWAII
BOARD OF REGENTS

'22 JAN 27 A9:01

College of Natural Sciences
Office of the Dean

DTS 22137 A1a

November 29, 2021

APPROVED
2/17/2022
DATE
BOARD SECRETARY
UNIVERSITY OF HAWAII
BOARD OF REGENTS

MEMORANDUM

To: Randolph G. Moore
Chair, Board of Regents

VIA: David Lassner
President

VIA: Michael Bruno
Provost

VIA: Laura E. Lyons
Interim Vice Provost for Academic Excellence

From: Dean Aloysius Helminck
College of Natural Sciences

SUBJECT: REQUEST FOR PROVISIONAL STATUS FOR THE BACHELOR OF ARTS IN MARINE BIOLOGY AT THE UNIVERSITY OF HAWAI'I AT MĀNOA

SPECIFIC ACTION REQUESTED:

It is respectfully requested that the Board of Regents grant provisional status to the BACHELOR OF ARTS IN MARINE BIOLOGY in the COLLEGE OF NATURAL SCIENCES at the University of Hawai'i at Mānoa.

RECOMMENDED EFFECTIVE TERM/YEAR:

It is respectfully recommended that the Bachelor of Arts in Marine Biology be effective as of the Fall 2022 semester.

2565 McCarthy Mall, Keller Hall Suite 201
Honolulu, Hawai'i 96822
Telephone: (808) 956-6451
Fax: (808) 956-9111
natsci.manoa.hawaii.edu

ADDITIONAL COST:

There are no additional costs associated with the creation of this new degree program. All courses are currently being taught. If laboratory enrollment in the Marine Biology courses grows, the laboratory fees paid by students will offset any additional expenses associated with purchasing supplies.

PURPOSE:

The provisional establishment of a Bachelor of Arts degree in Marine Biology (BA MB) is being requested to complement an existing Bachelor of Science in Marine Biology (BS MB). The proposed BA MB will provide students with an appealing option for a strong degree in marine biology that also allows them to develop skill sets that prepare them for a diverse array of non-research, ocean-related careers. The BA MB will provide a new option for Hawai'i resident students who have a passion for marine biology but want to give back to their communities in various ways through careers in teaching, sustainability, conservation, management, and community outreach, among other career pathways. With the increased flexibility of the proposed BA MB, graduates will have a broad set of skills applicable to diverse professional options. The BA MB is also expected to have a positive impact on overall retention and graduate rates of the marine biology major.

BACKGROUND:

This request is in accordance with Board of Regents policy 5.201 III(A)(1) which states that "The Board shall approve the establishment of all new instructional programs granting academic credit leading to a degree or credential." The ATP was approved by President Lassner on May 6, 2019. Although this proposal was submitted by the college in a timely fashion, the campus review process was unusually lengthy due to a variety of factors that were outside the purview of the program.

Significance/Contribution of this degree:
The Marine Biology major at UH Mānoa exemplifies a degree that *"focuses on programs of excellence that emphasize Hawai'i's many strengths and advantages of location, population and geography."* Our geographic location, Hawai'i's strong historical, cultural, and economic connection with the ocean, and the University's unique and diverse strengths in marine research, all make UH Mānoa a top choice for students interested in marine biology. The MB curriculum capitalizes on these unique strengths, with numerous field trips to learn first-hand within the Hawaiian waters and many opportunities for students to interact directly with local researchers and representatives from government and non-government organizations.

The BA MB will further provide students the flexibility to combine a marine biology major with complementary studies and training in other fields that are important in our state. This proposal includes courses from departments in the School of Ocean and Earth Science and Technology (OCN, approved), College of Social Sciences (GEO, approved) and the Hawai'inuiākea School of Hawaiian Knowledge (HWST, approved), which were not originally part of the BS MB.

Demand projections:
We expect that the BA MB will be attractive to a subset of students currently enrolled in the BS MB program, resulting in a slight initial decrease in BS MB enrollment and a corresponding increase in the BA MB.

The proposed BA MB supports UHM's goal to *"become more attractive to the best local high school graduates,"* and to *"attract more top national and international students."* The existing BS MB is already a popular degree and has the third highest headcount of classified degree-seeking undergraduates. It is anticipated that the BA MB will attract even more top local, national, and international students because it will allow them to pursue other interests and develop skills appropriate for a wide array of career paths in marine biology-related fields.

Similar models from peer institutions:
Only a small number of UHM's peer and benchmark institutions have the appropriate faculty expertise, geographic location, and student interest to offer a degree in marine biology, but many offer both BS and BA degrees in biology or more specialized areas of the natural sciences. There are several major R1 universities outside of our peer and benchmarks that offer a BA in marine biology – or a BA in biology with a marine biology track – including Duke University, the University of North Carolina at Chapel Hill, Florida State University, and the University of Oregon.

Similar programs at other UH campuses:
The existing degree program most similar to the proposed BA MB is the current BS MB at UHM. The BS program was designed to prepare students to pursue research-oriented careers, which is not the purpose of the proposed BA MB. UH Hilo has a BA and BS in Marine Sciences, which have a broader curriculum requiring a number of oceanography courses and containing far fewer marine biology courses than the proposed BA MB. The proposed BA MB is distinctly different from any program currently available in the UH system, filling a void by producing graduates with the necessary skills to fill a number of marine biology-related positions throughout the Hawaiian Islands. Both the current and past chairs of the Marine Science Program at UH Hilo were consulted during the development and approval process for the proposed BA MB, and they expressed their support for moving forward with establishing the BA MB at UHM.

Cost and resource allocation/reallocation implications:
There are no additional costs associated with the creation of this new degree program. All courses are currently being taught. If laboratory enrollment in Marine Biology courses grows, the laboratory fees paid by students will offset any additional expenses associated with purchases supplies. If additional laboratory sections are required, Teaching Assistants will be reallocated from among the existing pool available to the School of Life Sciences, which will house the program.

ACTION RECOMMENDED:

It is respectfully recommended that the Board of Regents grant provisional status to the BACHELOR OF ARTS IN MARINE BIOLOGY in the COLLEGE OF NATURAL SCIENCES at the University of Hawai‘i at Mānoa.

Attachment: Proposal for Bachelor of Arts in Marine Biology

cc: Executive Administrator and Secretary of the Board Kendra Oishi

**Provisional Program Proposal: Bachelor of Arts in Marine Biology**
**School of Life Sciences in the College of Natural Sciences**
**University of Hawai‘i at Mānoa**

## SUMMARY

The School of Life Sciences (SoLS) and College of Natural Sciences at UH Mānoa (UHM) are proposing a new degree program, a Bachelor of Arts in Marine Biology (BA MB). The proposed BA MB will enhance marine biology education at UHM and grow Hawaii's workforce in key areas by providing the opportunity for students to pursue a rigorous scientific degree, while also providing flexibility to engage across other units at UHM to develop new and complementary skill sets. Students in the BA MB program will be able to train for jobs in marine-related areas such as sustainability, sustainable tourism, education, marine policy, and Hawaiian Studies, while still following their passion for marine biology. The projected size of the BA MB in five years is ~160 students; some of these will come from redistribution within Biology and Marine Biology, some through increased retention, and some will be new students attracted by the BA MB. All courses needed for the BA MB already exist within the Bachelor of Science in Marine Biology (BS MB) or in other units at UH, so this proposal is low risk and will require no new resources to SoLS.

## PROGRAM PURPOSE

We are proposing a new degree program, the BA MB, to complement the existing BS MB at UHM. The BS MB was created in 2002 to meet a growing demand from prospective and current undergraduates for training in marine biology in Hawai‘i, as well as the market demand for college graduates in the field, here and abroad. It is currently the third largest major on campus, with almost 400 students. Demand for the program is driven by both Hawai‘i's unique situation, surrounded by an ocean filled with spectacular marine life that is closely entwined with human history in the islands, and plays a major sustaining role in traditional and modern societal practices; and its reputation for excellence in marine biology research. As initially envisioned, the BS MB was designed primarily to prepare students for graduate studies in marine biology or for future jobs that required training in quantitative or physical sciences in addition to marine biology. Other stated goals of the BS MB were to prepare students for career opportunities in careers such as:

- K-12 marine biology teachers for public and private schools.
- Marine Biology-savvy workers for government, non-government, and private agencies.
- Marine Biology-trained workers in aquaculture, marine resource management, consulting firms, and analytical laboratories.
- Natural history interpreters for leisure cruises, diving, coastal hikes or related ecotourism.

Preparing students for these other, non-research careers is important for communities and for the State of Hawai‘i, and many of our majors are passionate about teaching, management, conservation, science communication, and sustainability. While the BS MB program was designed to be highly rigorous, one unanticipated consequence has been that the degree program limits the ability of MB students to prepare for non-research careers. The current BS MB program sheet only has room for one elective course outside of MB, MB-related, and general education requirements. Without taking extra time to graduate, the vast majority of BS MB students cannot earn a certificate, complete a minor, or even take a cluster of courses in

their other areas of interest. The proposed BA MB contains core introductory Biology and Chemistry courses, along with advanced courses in marine biology that are similar to requirements for the BS MB, but with greater flexibility. By removing some non-marine biology content that is traditionally included in BS degrees to prepare students for graduate school in STEM fields, the BA MB creates space for students to develop other skills and knowledge while still pursuing their passion for marine biology.

Our primary reason for proposing a BA MB is to provide students with the option for a strong degree in marine biology that also allows them to explore other areas and develop new skill sets that will prepare them for a wide diversity of ocean-related careers. Other important goals include improving retention, increasing the attractiveness of the degree program for local students, and building connections across UH and Hawai‘i.

**PROGRAM OUTCOMES**

The Program Learning Outcomes (PLOs) for the BA MB are shared between the BS MB, as well as the BA and BS in Biology, which is offered through the School of Life Sciences (SoLS). Upper-level core courses in the BS MB and proposed BA MB address the PLOs in a marine context.

Table 1. SoLS Undergraduate Program Learning Outcomes

*Biological Knowledge: Synthesis and Application*

Student will be able to:

1. Explain biological processes from molecules to ecosystems in an evolutionary context, including being able to use examples from Hawai‘i.

*Critical Thinking and Reasoning Skills*

Student will be able to:

2. Demonstrate scientific literacy by critically evaluating scientific evidence, identifying gaps in knowledge, and applying strong evidence-based biological arguments to real-world problems.
3. Apply the scientific method to generate new hypotheses, formulate experimental approaches and outline potential outcomes, applying appropriate logical and quantitative methods.

*Values*

Student will:

4. Work individually and in teams in an ethical manner, and demonstrate respect for diversity of viewpoints.

*Communication skills*

Student will:

5. In oral and written forms, be able to communicate biological information clearly and professionally.

Table 2. BA MB Curriculum Map

Key: I - Introduce, R-Reinforce, M-Mastery, A- Assessment Point.

| | PLO 1 | PLO 2 | PLO 3 | PLO 4 | PLO 5 (Written) | PLO 5 (Oral) |
|---|---|---|---|---|---|---|
| **BIOL 171** | I | | | | | |
| **BIOL 171L** | | | | I | I | |
| **BIOL 172** | I | | | | | |
| **BIOL 172L** | I | | | I | I | I |
| **BIOL 220** | I | I | I | | | |
| **BIOL 265** | R | I | I | | | |
| **BIOL 265L** | R | I | I | R | R | I |
| **BIOL 275** | R | I | | R | R | |
| **BIOL 275L** | R | I | I | R | R | R |
| **Marine Biology Courses** | | | | | | |
| **OCN 201** | I | I | | | | |
| **BIOL 301** | R | R | R | | | |
| **BIOL 301L** | R | R | R | R | | R |
| **Group I Electives** | R/M | R/M | R/M | R/M | | |
| **Group II Electives** | R/M | R/M | R/M | | R/M | R/M |
| **Synthesis Experience** | M, A | M, A | M, A | M, A | M, A | M, A |

**Alignment with System and Campus Mission and Academic Plan**

The Marine Biology major at UH Mānoa exemplifies a degree that "*focuses on programs of excellence that emphasize Hawai'i's many strengths and advantages of location, population and geography.*" Our geographic location, Hawai'i's strong historical, cultural, and economic connection with the ocean, and the University's unique and diverse strengths in marine research, all make UH Mānoa a top choice for students interested in marine biology. The MB curriculum capitalizes on these unique strengths, with numerous field trips to learn first-hand within the Hawaiian waters and many opportunities for students to interact directly with local researchers and representatives from government and non-government organizations. The BA MB will further provide students the flexibility to combine a marine biology major with complementary studies and training in other fields that are important in our state, such as Hawaiian Studies, Education, and Sustainability.

The proposed BA MB will support UHM's goal to "*become more attractive to the best local high school graduates*," and to "*attract more top national and international students*." The existing BS MB is already a popular degree with close to 400 majors (approximately 30% of all SoLS majors). We feel the BA MB

would attract even more top local, national, and international students because it will allow them to pursue other interests and develop skills appropriate for a wide diversity of career paths in marine-biology-related fields. We list many examples of such career paths throughout this proposal.

Table 3. Alignment of BA Marine Biology Learning Outcomes with UHM Institutional Learning Outcomes

| **UHM ILOs** | **Mapped to by BA MB PLOs** |
|---|---|
| 1. ***Know—Breadth and Depth of Knowledge*** | |
| *a. General education* | **BA MB PLO 1** |
| *b. Specialized study in an academic field* | **BA MB PLO 1** |
| *c. Understand Hawaiian culture and history*. | |
| 2. ***Do—Intellectual and Practical Skills*** | |
| *Students improve their abilities to* | |
| *a. Think critically and creatively* | **BA MB PLO 2** |
| *b. Conduct research* | **BA MB PLO 3** |
| *c. Communicate and repo*rt | **BA MB PLO 5** |
| **3.** ***Value—Personal and Social Responsibility*** | |
| *Students demonstrate excellence, integrity, and engagement through* | |
| *a. Continuous learning and personal growth* | **BA MB PLO 4** |
| *b. Respect for people and cultures, in particular Hawaiian culture* | **BA MB PLO 4** |
| *c. Stewardship of the natural environment* | |
| *d. Civic participation in their communities* | |

**STUDENT DEMAND AND PROJECTED ENROLLMENTS**

The BS MB was one of the top majors indicated for students applying for Fall 2019 entrance, with a ~32% increase in admitted majors compared to Fall 2018. Particularly in light of the growth in the BS MB, we feel the BA MB is important because it will allow entering students to prepare not just for graduate school and careers directly related to STEM fields, but also to better align themselves with the wide diversity of careers in marine biology-related fields in the state of Hawai‘i and elsewhere.

In the 2013 established-status request for the BS MB, we reported that among graduates who responded to a survey, ~⅔ had continued on to graduate programs and ~⅓ to employed positions, mostly in MB-related fields. Many of these positions (and some of the graduate programs) were in areas such as education, conservation, and sustainability. Having the BA MB as an option will create flexibility in the courses students can choose to take, and allow them to better prepare for the wide diversity of careers that are open to them.

We expect the new BA MB to attract currently enrolled students who desire greater flexibility. Biology BAs that want more flexibility than the Biology BS, but would prefer to focus on MB content, students who want to double major, and some new students who have career interests in MB, but want to pursue careers that do not require graduate research in STEM fields.

**Student Interest**

We surveyed the BS MB and Biology (BA and BS) majors to determine the level of demand for the proposed new degree and received 124 responses. When asked "*If you were starting college now, would you be interested in a BA degree in Marine Biology?*", 38% answered "yes" and 41% answered "maybe." Of the students who answered the question "*What would you view as the strongest reasons to pursue a BA in Marine Biology (as opposed to a BS)?*", 65% listed increased flexibility, citing their interest in taking courses that would help them prepare for marine biology-related careers in management, sustainability, education, conservation, or humanities. A further 12% responded that a BA would be appealing because it would allow them to complete a double major without extending past four years (currently not possible with the BS MB).

When we asked "*Please share any other insight you have on the proposed BA in Marine Biology*," students said many positive things, including:

*"It allows for more diversity for students pursuing careers in marine bio such as education and public outreach, like myself."*

*"I think this would be a great option for those uninterested in becoming a researcher and/or professor in the future. I think other classes, such as those geared towards ocean conservation, sustainability, politics, etc. should be included."*

*"Some people want to pursue marine bio for conservation purposes but also enjoy the arts as well with a BA in marine bio students are able to explore both interests they have. Please add this opportunity it would be amazing for so many reasons."*

**Projected Enrollment**

We expect that the BA MB will be attractive to a subset of students currently enrolled in the BS MB program, resulting in a slight decrease in BS MB enrollment and a corresponding increase in the BA MB. In addition, we expect increased retention within the MB major, which will be reflected in the BA MB enrollment, because there will now be a MB-oriented option for students who decide they want to pursue fields other than traditional MB research-related careers. We also expect a small amount of growth as the BA MB program will be attractive to new students owing to its flexibility in preparing students for future MB-related careers.

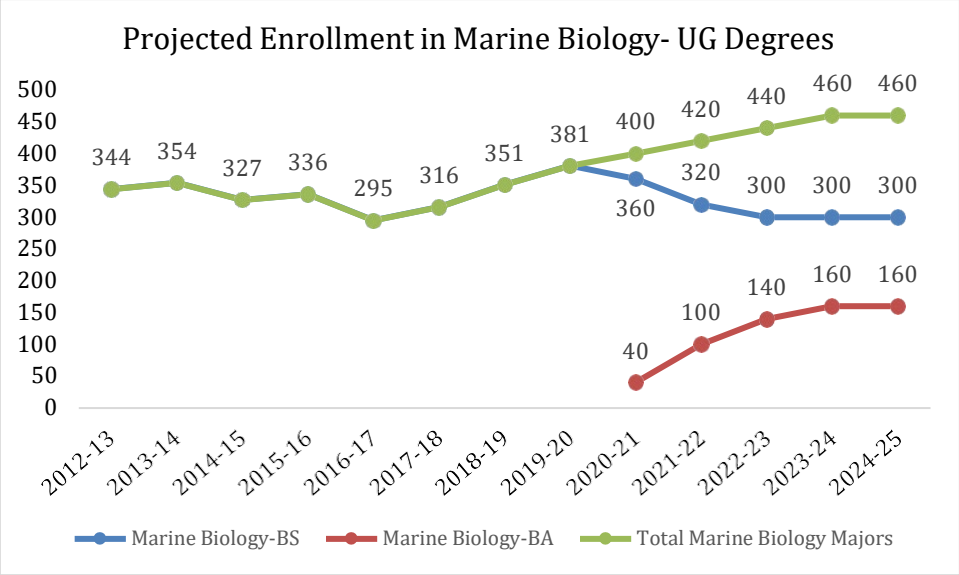


Table 4. Enrollment Projections for the BA in Marine Biology: Provisional Years

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| Projected Enrollment | 0 | 40 | 100 | 140 | 160 | 160 |

**Projected Number of Graduates**

We predict the BA MB will initially decrease the number of BS MB majors because some students will choose to move into the BA MB; also in the short term, we expect the total number of MB majors to increase slightly through improved retention. Some students may also redistribute from the BA Biology into the BA MB. Over time, we predict the establishment of the BA MB will result in at least a small overall increase in the number of MB graduates due to improved retention in the MB major (and at UH). If our predictions about additional growth in the new degree are correct (see below in Student Demand, part B), we would eventually expect to graduate ~ 30 BA MB students per year.

Table 5. Program Completion Projection

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| Projected Program Completion (annual) | 0 | 5 | 10 | 20 | 30 | 40 |

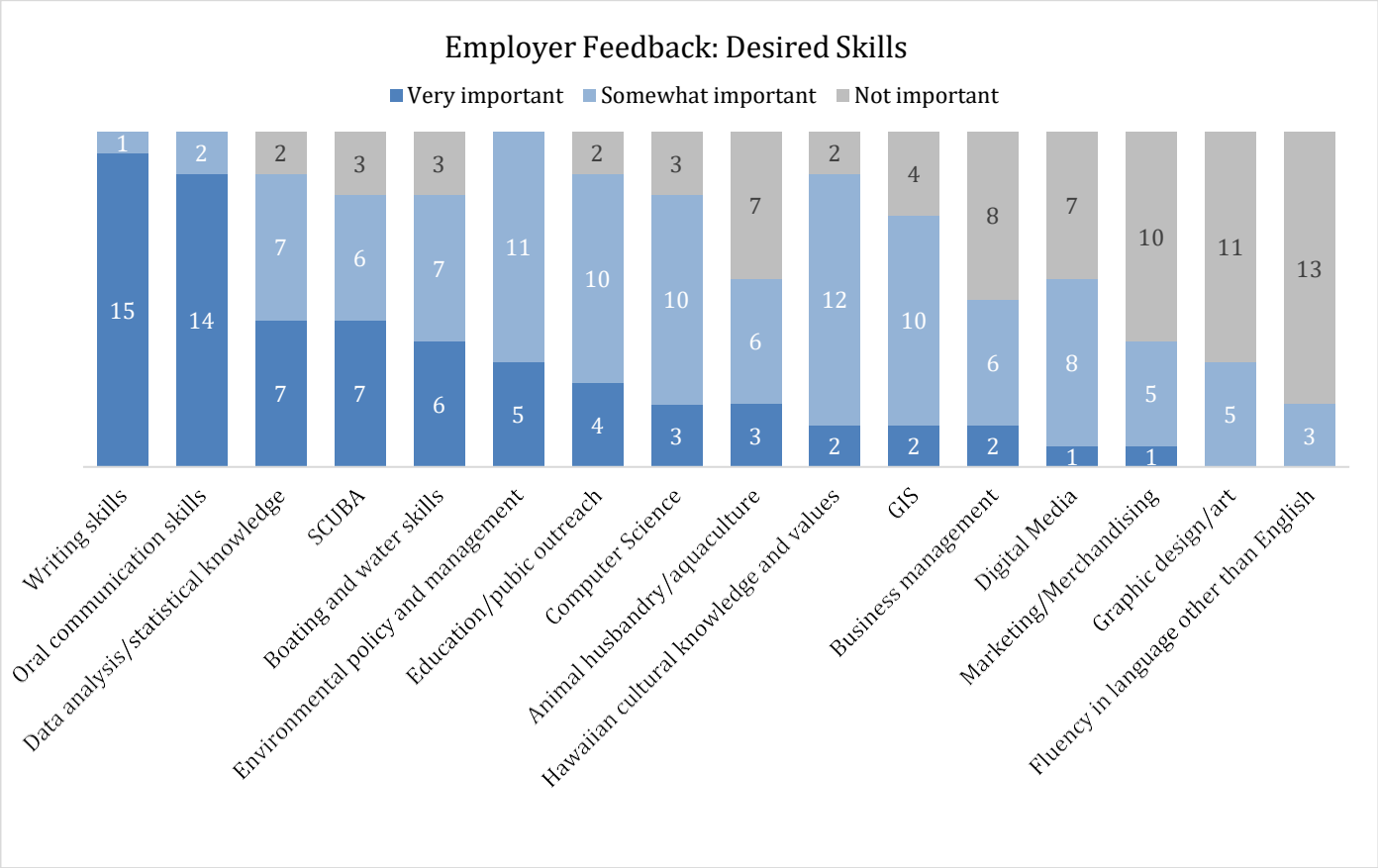
**Career and Graduate Education Opportunities**

Because students completing the BA MB could have many different skill sets, we predict that their career and graduate education opportunities will be varied as well. For graduate school, students who wished to continue on to e.g. medical, veterinary, law, or other graduate and professional schools would have space in their schedules to take the additional required courses for admittance.

For other career opportunities, we surveyed potential employers for BA MB graduates in the State of Hawai‘i, most of whom had previously employed BS MB graduates, about the skill sets they most value in prospective employees beyond knowledge of marine biology. We received 16 responses from employers at the federal, state, and local level, including private, public, and nonprofit entities. Out of the 14 options we listed (*Employer Feedback: Desired Skills* graph, page 6), the top two most desirable qualities were strong **written** and **oral communication** skills; every employer listed these as either “very important” (15/16 for strong writing skills, 14/16 for strong oral communication skills) or “somewhat important” (the remaining 1 and 2 employers, respectively). Otherwise, not surprisingly, desirable skill sets were as varied as the employers. The overwhelming importance of written and oral communication skills suggests that BA MB graduates will be highly attractive to employers if they choose to further develop these valued skills by taking relevant courses in other fields e.g. English or Communicology. There are already a number of opportunities for BA MB students to develop their writing skills through writing intensive marine-biology-oriented coursework, and we will further emphasize the importance of written and communication skills for BA MB majors through the College of Natural Sciences advising office.

After written and oral communication skills, other skills and expertise valued as “very important” or “somewhat important” by 13 or more employers included **environmental policy and management** (5 “very important”, 11 “somewhat important”), **data analysis and statistical knowledge** (7 very, 7

somewhat), **education and public outreach** (4/10), **Hawaiian cultural knowledge and values** (2/12), **scientific diving** (7/6),**boating and water skills** (6/7), and **computer science** (3/10). The proposed BA MB includes a course in biostatistics, and the other topics and skills are areas that BA MBs could pursue through existing classes, minors and certificates from different units across the University. These include, but are not limited to, minors in Education, Communicology, Hawaiian, English, and Information and Computer Science; and certificates in Sustainability (currently in development), Sustainable Tourism, Mathematical Biology, and the Marine Options Program.




Notably, at least one employer chose "very important" for all but two of the fourteen fields in the survey, including seemingly distantly related areas like **marketing and merchandising** and **digital media**. Every category was listed as "somewhat important" by at least three employers. This highlights the importance of a degree program that allows MB majors to develop skill sets that are outside of the traditional BS route. To reiterate an earlier point, students in the existing BS MB have limited ability to take courses and develop skills outside of their degree program because they do not have free elective credits to use towards completing minors or certificates.

**Need for the Program in Hawai‘i**

One beneficial outcome of the proposed BA MB is that it will provide a new option for Hawai‘i resident students who have a passion for marine biology but want to give back to their communities in varied ways, through teaching, sustainability, conservation, management, or community outreach. The flexibility in the proposed BA MB, graduates could have a variety of skill sets in different areas. Below we list three examples of complementary subjects BA MB students could pursue that would address the professional, economic, social, and workforce needs of the state of Hawai‘i.

Education

BA MB students could complete a Minor in Education (MIE) if they were considering education as a future profession. The U.S. Department of Education has identified science as a ‘teacher shortage area’ (TSA) for the state of Hawai‘i in every year since 1993 (TSA Nationwide Listing Comprehensive Compendium, May, 2017), and science is listed as one the top three Hawai‘i Department of Education (HIDOE) TSAs for the 2018-2019, 2019-2020, and 2020-2021 school years (https://tsa.ed.gov/#/reports). MIEs can opt to graduate with certification as substitute teachers with HIDOE; a history of employment with HIDOE would give our graduates priority for programs like the Grow Our Own Teachers Initiative, a fast-track program at UHM which offers a post- baccalaureate certificate in secondary education or a Master of Education in teaching with full scholarship stipends, in exchange for a commitment to teach in the Hawai‘i public schools for three or more years. We have also discussed a 3+2 degree program with the College of Education that would allow students to graduate in five years with a BA MB, a Masters degree in teaching, and a State of Hawai‘i teaching credential. If the degree program is approved, we hope to pursue the creation of such a program.

Hawaiian Language and Traditional Knowledge

Future workers in Hawai‘i in any field, including but not limited to resource management, education, and science communication, should have the knowledge to make culturally appropriate recommendations and to interact productively and respectfully with local communities and community leaders. BA MB students could, if they wished, pursue a minor or certificate in Hawaiian. Also, to strengthen this component of the MB degree generally, in the proposed ‘major electives’ course list we have included HWST courses that focus on traditional knowledge and approaches to marine biology. We look forward to the role the BA MB will play in building connections between marine biology instructors and researchers in the SoLS and the Kamakakūokalani Center for Hawaiian Studies.

Sustainability and Hawai‘i’s Green Economy

The August 2019 report by the University of Hawai‘i Economic Research Organization (UHERO), “Characterizing Hawai‘i’s Natural Resources Management Sector: Jobs, Education, Salaries, and Expenditures,” highlights ways that the BA MB will contribute to the professional, social, and workforce needs of Hawai‘i. The report shows that in Hawai‘i’s “Green Economy,” jobs in natural resource management (defined as “..activities and employees that support and care for natural lands, air, freshwater and marine systems in Hawai‘i”) grew at an annual rate of 7% between 2014 and 2018. Employers reported that most of these positions required at least a 4-year bachelor’s degree, and one of the key recommendations in the UHERO report was to “Encourage pursuit of the most desirable college majors for natural resource management careers: natural resources management, biology, environmental studies, botany, ecology, Hawaiian studies, communications, **marine biology**, geography, environmental law.” This

fits perfectly with the goals of the BA MB; graduates will have solid training in marine biology and can also gain experience and knowledge in other, complementary fields such as sustainability, Hawaiian studies, communications, and law.

**National and International Need**

BA MB students could graduate with a variety of skill sets that would prepare them for different types of jobs in ocean-related industries. Jobs in the variously-termed "Blue Economy" or "Ocean Economy" are increasingly important in the United States. According to the NOAA Report on the U.S. Ocean and Great Lakes Economy (2019), "Blue Economy" jobs accounted for 2.3% of total employment in the US in 2016, with a 2.7% increase in positions between 2010 and 2016, compared to 1.7% overall job growth during that time.

The six sectors in NOAA's Ocean Economy Report (2019) were Living Resources, Tourism and Recreation, Marine Transportation, Marine Construction, Ship and Boat Building, and Offshore Mineral Extraction. The University of Hawai‘i have unique and outstanding resources to support preparation of BA MB graduates in many of these areas. Tourism and Recreation was by far the largest sector in NOAA's report, accounting for 73% of total employment and 41% of GDP. As a global center for tourism, much of it ocean-based, Hawai‘i and the University of Hawai‘i are uniquely situated to attract and train BA MB students in areas complementary to marine biology, such as Sustainable Tourism. Living Resources is another area of obvious overlap; many of our students' express interests in resource management or aquaculture, which also fits with the employment needs of the State of Hawai‘i.

**PROGRAM ORGANIZATION**

The BA MB will require a foundation in chemistry, including General Chemistry I and II plus corresponding laboratories, and Organic Chemistry I with laboratory. This is essential to ensure students have the knowledge to complete molecular-oriented biology and marine biology coursework. They will also need a strong foundation in biology-related statistics, so all BA MB students will complete a Biostatistics course (BIOL 220). The biostatistics skills learned in this course will carry through their MB coursework. The paperwork was submitted in spring 2020 for BIOL 220 to fulfill the foundations in quantitative reasoning (FQ) general education requirement.

All BA MB students will complete Introductory Biology I and II plus corresponding laboratories (BIOL 171+171L, BIOL 172+172L) to ensure a broad exposure to basic biology topics. Building on that foundation, students will complete Ecology and Evolutionary Biology plus laboratory (BIOL 265+265L) and Cell and Molecular Biology plus laboratory (BIOL 275+275L) to learn essential information and skills necessary for upper-division marine biology requirements. Marine Biology specific coursework will start with Science of the Sea (OCN 201) and Marine Ecology and Evolution plus laboratory (BIOL 301+301L) to ensure all BA MB students have a fundamental understanding of ocean processes and ecosystems. The remaining coursework will provide the flexibility for students to customize their BA MB to ensure they complete coursework that prepares them for their future career interests. The MB electives include:

Group 1 Electives (complete 2 courses) - in addition to BIOL 301+301L, students will complete at least two MB-focused courses with labs:

- Fish Diversity Laboratory (BIOL 465L)
- Biology of Invertebrates Lab (BIOL 485L)
- Algal Diversity and Evolution (BOT 480)
- Marine Microbiology Laboratory (MICR 401L)
- Global Environmental Change Laboratory (OCN 310L)

Group 2 Electives (complete 3 courses) - students will take at least three additional MB-focused courses, with or without a lab:

- Marine Mammal Biology (BIOL 331)
- Biology of Marine Organisms (BIOL 406)
- Corals and Coral Reefs (BIOL 411)
- Fish Diversity (BIOL 465)
- The Rise of Fishes: An Evolutionary History (BIOL 468)
- Biology of Invertebrates (BIOL 485)
- Algal Diversity and Evolution (BOT 480)
- Marine Microbiology (MICR 401)
- Global Environmental Change (OCN 310)
- Aquatic Pollution (OCN 320)
- Living Resources of the Sea- Mai ke Kai Mai ke Ola (OCN 331)
- Introduction to Deep-Sea Biology (OCN 430)

Group 3 Electives (complete 2 courses) - students will complete at least two courses that would specifically build towards important MB topics:

- Basic Biochemistry (BIOC 441)
- Ethology (BIOL 306)
- Biology of the Vertebrates (BIOL 325)
- Genetics (BIOL 375)
- Communicating in Biological Sciences (BIOL 390)
- Principles of Biochemistry (BIOL 402)
- Natural History of the Hawaiian Islands (BIOL 454)
- Evolutionary Biology (BIOL 470)
- Plant-Animal Interactions (BOT 456)
- Plant Physiology (BOT/TPSS 470)
- Marine Policy (GEO 423)
- Mālama Loko Iʻa (HWST 353)
- Aloha Kanaloa-Marine Resources and Abundance (HWST 356)
- Kiaʻi Kanaloa-Guarding Our Ocean Resources (HWST 456)
- ʻĀina Mauliola: Hawaiian Ecosystems (HWST 457)
- Mathematical Modeling: Deterministic Models (MATH 304)
- Mathematical Modeling: Probabilistic Models (MATH 305)
- Microbes and Their Environment (MICR 485)
- Virology (MICR 490)
- Ecology of Infectious Diseases and Symbioses (OCN 340)
- Marine Functional Ecology Biotechnology (OCN 403)
- Aquaculture Production (OCN 450)
- Earth's Microbiome (OCN 454)
- Ridge to Reef: Coastal Ecosystem Ecology and Connectivity (OCN 457)

Finally, all BA MB students will complete a synthesis experience. They can select which synthesis experience will provide the most appropriate preparation for future career interests. The list of qualifying courses will be regularly evaluated and revised by the Marine Biology Steering Committee within the SoLS at UHM.

- Ocean Internships and Research (BIOL 400)
- Field Problems in Marine Biology (BIOL 403)
- Advanced Topics in Marine Biology (BIOL 404)
- Directed Research (BIOL/BOT/MICR/OCN 499)
- Advanced Quantitative Underwater Ecological Surveying Techniques (QUEST) MARE 364 (UH Hilo)

This proposal includes courses in OCN (approved), GEO (approved) and HWST (approved) that were not originally part of the BS MB. Consultation emails with the respective departments are appended.

**Academic Advising**

Academic advising is provided by three full-time academic advisors who are overseen by a faculty specialist that serve the SoLS undergraduate students. They work closely with the two College of Natural Sciences academic advisors that help provide advising to the rest of the College of Natural Sciences. Through one-stop-shop advising students have all of their advising needs met while meeting with one advisor. This creates a simple mechanism to ensure holistic advising for all SoLS students, including students in the new BA MB program.

**Articulation with UH Community Colleges**

The first two years of the proposed BA MB do not include any new courses compared to the existing BS MB. Thus, provisions for articulation with UH Community Colleges are already in place.

## PROGRAM RESOURCES AND EFFICIENCY

**Initial Implementation**

No new resources are needed. All courses are already in place and we have the resources to offer them. If lab enrollment in MB courses grows, the laboratory fees paid by students will offset any additional expenses in purchasing supplies.

In the future, when resources are available, we will advocate for hiring a faculty specialist who will build community partnerships to foster internship opportunities for our BA MB students to enrich the synthesis experience. In addition, we foresee this position will help steer all MB majors towards connecting with engagement opportunities such as internships, directed research, and community outreach. This is a position we do not currently have, but we feel our students would universally benefit from a specialist focused on helping connect students' academic pursuits with real-world experience to ensure they are prepared for the next step in their journey after they complete their MB degree. This will also fit with a recommendation in the UHERO August 2019 report referenced above: "Encourage the continued development of public-private partnerships...to maximize the benefits generated by the effort and resources being invested in the NRM sector by individual organizations."

**Expected Source of New Funds**
Establishment of this degree will require no new resources.

**Costs**
In Fall 2019 the majors within the SoLS had an enrollment of 1,272 undergraduate and 78 graduate students and provided approximately 18,385 student semester hours (SSH) of instruction each year. The cost of all teaching assistants, faculty and lecturers totaled to $6,034,866, equating to $328.25/SSH. With the introduction of the BA MB degree we expect the cost per SSH to decrease because there is no need for new courses. We anticipate some shifting in enrollment as students move from the BS to the BA MB and plan to reallocate TAs within SoLS to accommodate this change in enrollment. We anticipate approximately 704 SSH of additional instruction within existing courses. We have 45 faculty with a ration of 408 SSH/faculty member and expect that ratio to grow to 424.2SSH/faculty member with increased enrollment in the BA MB.

Table 6. Anticipated NEW Personnel and Operating Costs

| Personnel | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| New Tenured Faculty | 0 | 0 | 0 | 0 | 0 | 0 |
| New Lecturers | 0 | 0 | 0 | 0 | 0 | 0 |
| Other (TA Lines) | 0 | 0 | 0 | 0 | 0 | 0 |

Table 7. Anticipated NEW Operating Costs

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| New Operating Costs | 0 | 0 | 0 | 0 | 0 | 0 |

Table 8. Anticipated Courses, Sections, SSH

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| No. New Courses Offered | 0 | 0 | 0 | 0 | 0 | 0 |
| No. New Sections Offered | 0 | 2 | 2 | 2 | 2 | 2 |
| Annual SSH | 0 | 224 | 160 | 160 | 160 | 160 |

**Similar Programs in the UH System**
As discussed previously, the program most similar to the proposed BA MB is the current BS MB at UHM. That program was designed to prepare students to pursue research-oriented careers, which is not the purpose of the proposed BA MB. UH Hilo has a BA and BS in Marine Sciences, which have a broader curriculum requiring a number of oceanography courses and containing far fewer marine biology courses than the proposed BA MB. The proposed BA MB is distinctly different from any program currently available in the UH system, filling a void by producing graduates with the necessary skills to fill a number of marine biology-related positions throughout the Hawaiian Islands.

## PROGRAM EFFECTIVENESS

The SoLS has an assessment committee, which is overseen by the Associate Director for Curriculum. The assessment committee will be responsible for assessing student learning within the BA MB program. The committee conducts yearly assessment cycles of the student learning outcomes to ensure continuous program improvement. The SoLS assessment committee consults with the Marine Biology steering committee, which is made up of faculty who teach upper-division MB requirements within the BS MB. In addition, all graduating students complete an exit survey that is used to gain feedback from students about their experience in our programs. This information is used to make improvements to our program, such as increasing availability of required courses, addressing course conflicts, creating workshops to help students explore potential career paths and increasing communication about internships and job opportunities.

### Program Accreditation

There are no Marine Biology accrediting bodies, so our program will be part of the regular College of Natural Sciences program review cycle.

## APPENDIX A:

## PROGRAM SHEET

# University of Hawai'i at Mānoa
## Colleges of Arts & Sciences Program Sheet 2021-2022
# Bachelor of Science (BA) in Marine Biology
**Admissions: Open  Process: Declaration**
**Min. Total Credits: 120 (95 in core & major + 25 in electives)**

| **UHM General Education Core Requirements** |
|---|
| |
| **Foundations** |
| ❑ FW ENG 100, 100A, 190, ESL 100, or AMST 111 |
| ❑ FQ* BIOL/BOT 220 |
| ❑ FG (A / B / C) |
| ❑ FG (A / B / C) |
| **Note: This requirement changed in Fall 2018. If you entered the UH System prior to that, please see your college/school advisor.* |
| **Diversification** |
| ❑ DA / DH / DL |
| ❑ DA / DH / DL |
| ❑ DB BIOL 171, 172 |
| ❑ DP CHEM 161 |
| ❑ DY BIOL 171L, 172L |
| ❑ DS |
| ❑ DS |
| *** See degree, college and major requirements for courses that can also fulfill these.* |
| **UHM Graduation Requirements** |
| |
| **Focus** |
| ❑ H |
| ❑ E (300+) |
| ❑ O (300+) |
| |
| ❑ W |
| ❑ W |
| ❑ W |
| ❑ W (300+) |
| ❑ W (300+) |
| |
| **Hawaiian / Second Language** |
| ❑ 101 |
| ❑ 102 |
| ❑ 201 |
| ❑ 202 |
| |
| **Credit Minimums** |
| ● 120 total applicable |
| ● 30 in residence at UHM |
| ● 35 major-required lower division/25 upper division (300+ level) credits |
| **Grade Point Average** |
| ● 2.0 cumulative or higher *(Note: Other GPAs may be required.)* |

| |
|---|
| **Credit Maximums** |
| ● 8 KRS activity |
| ● 9 Directed Reading / Research |
| ● 12 Practicum / Internship |

*This program sheet was prepared to provide information and does not constitute a contract. See back for major requirements. Meet regularly with your major advisor.*

| **Major Requirements for BA in Marine Biology** |
|---|
| Admission: Open |
| Application: NA |
| Min. major credits: 49 (62-66 including all related requirements) |
| Min. C grade (not C-) in all courses |
| |
| **Requirements** |
| **Marine Biology Related Requirements (13 credits)** |
| ❑ CHEM 161*[DP] / ❑ 161L*[DY] |
| ❑ CHEM 162 / ❑ 162L |
| ❑ CHEM 272 / ❑ 272L |
| |
| **Biology Core Courses (21 credits)** |
| ❑ BIOL 171*[DB] / ❑ 171L*[DY] |
| ❑ BIOL 172*[DB] / ❑ 172L*[DY] |
| ❑ BIOL 220 |
| ❑ BIOL 265 / ❑ 265L *(Fall only)* |
| ❑ BIOL 275 / ❑ 275L |
| |
| **Marine Biology Required Core (25-27 credits)** |
| ❑ OCN 201 |
| ❑ BIOL 301 / ❑ 301L *(Spring only)* |
| ❑ Group 1 Electives (minimum two courses) BIOL 465L, 485L; BOT 480; MICR 401L; OCN 310L |
| ❑ Group 2 Electives (minimum three courses) BIOL 331, 406, 411, 465, 468, 485; BOT 480; MICR 401; OCN 310, 320, 331, 430 |
| ❑ Group 3 Electives (minimum two courses) Includes courses in Group 2, plus: BIOC 441; BIOL 306, 325, 375, 390, 402, 470; BOT 456, 470; GEOG 423; HWST 353, 356, 456, 457; MATH 304, 305; MICR 485, 490; OCN 340, 403, 450, 454, 457 |
| |
| **Synthesis Experience (3 credits)** |
| ❑ BIOL 400, 403, 404, or 499; MARE 364 (UH Hilo) |
| |
| |
| **Notes** |
| Student Academic Success Center: Sinclair 301; (808) 956-5911; cnsadvis@hawaii.edu; https://natsci.manoa.hawaii.edu/sasc<br>School of Life Sciences: Edmondson 216; (808) 956-8303; lifesci@hawaii.edu; https://lifesciences.manoa.hawaii.edu |

## APPENDIX B:

## FOUR-YEAR PLAN

# University of Hawai‘i at Mānoa – Four-Year Academic Plan 2021-2022

## Colleges of Arts and Sciences

## Bachelor of Science (BA - draft) in Marine Biology

**This is a sample academic plan. Students should meet with an academic advisor prior to registration to formulate their own plan.**

| Year 1 | | Year 2 | | Year 3 | | Year 4 | |
|---|---|---|---|---|---|---|---|
| **Fall** | | **Fall** | | **Fall** | | **Fall** | |
| **BIOL 171** or **172** (DB) | 3 | **BIOL 265** | 3 | **BIOL 275** | 3 | **Group 2 Elective** | 3 |
| **BIOL 171L** or **172L** (DY) | 1 | **BIOL 265L** | 1 | **BIOL 275L** | 2 | **Group 1 Elective** | 1 |
| **CHEM 161** (DP) | 3 | **CHEM 272** | 3 | **Group 2 elective** | 3 | Elective | 3 |
| **CHEM 161L** | 1 | **CHEM 272L** | 2 | HSL 201 | 3 | DS | 3 |
| **OCN 201** (DP) | 3 | FG (A/B/C) | 3 | Elective | 3 | Elective | 3 |
| FW | 3 | HSL 101 | 3 | Elective | 3 | Elective | 3 |
| Credits | 14 | Credits | 15 | Credits | 17 | Credits | 16 |
| **Spring** | | **Spring** | | **Spring** | | **Spring** | |
| **BIOL 172** or **171** (DB) | 3 | **BIOL 301** | 3 | **Group 2 Elective** | 3 | **Synthesis Experience** | 3 |
| **BIOL 172L** or **171L** (DY) | 1 | **BIOL 301L** | 2 | **Group 1 Elective** | 1 | **Group 3 Elective** | 3 |
| **CHEM 162** | 3 | DS | 3 | **Group 3 elective** | 3 | DA/DH/DL | 3 |
| **CHEM 162L** | 1 | HSL 102 | 3 | HSL 202 | 2 | Elective | 1 |
| **BIOL 220 (statistics) (FQ)** | 4 | DA/DH/DL | 3 | Elective | 3 | Elective | 3 |
| FG (A/B/C) | 3 | | | Elective | 3 | | |
| Credits | 15 | Credits | 14 | Credits | 15 | Credits | 13 |
| **Summer** | | **Summer** | | **Summer** | | **Summer** | |
| Credits | 0 | Credits | 0 | Credits | 0 | Credits | 0 |
| **Total Credits** | 29 | **Total Credits** | 58 | **Total Credits** | 90 | **Total Credits** | 120 |

**Notes:**
Students must take placement exams to be able to register for CHEM 161 and MATH 215 or 241.
Students must incorporate all focus requirements into this plan. Focus designations (i.e., W, E, O, H) are CRN specific & semester specific.
A combination of no fewer than 25 upper division credits and 35 major-required lower division credits are required.
Students must complete both BIOL 171/171L and 172/172L, but they may be completed in either order.

**Marine Biology Electives**
Group 1: Choose 2 labs (BIOL 465L, 485L; BOT 480; MICR 401L; OCN 310L)
Group 2: Choose 3 lectures (BIOL 331, 406, 411, 465, 468, 485; BOT 480; MICR 401; OCN 310, 320, 331, 430)
Group 3: Choose 2 lectures (Courses in Group 2, plus: BIOC 441; BIOL 306, 325, 375, 390, 402, 470; BOT 456, 470; GEO 423; HWST 353, 356, 456, 457; MATH 304, 305; MICR 485, 490; OCN 340, 403, 450, 454, 457)

## APPENDIX C:

## LETTERS OF SUPPORT

# Amy Moran

**From:** Kekuewa Kikiloi <kikiloi@hawaii.edu>
**Sent:** Monday, October 12, 2020 1:02 PM
**To:** Amy Moran
**Cc:** Noelani Puniwai
**Subject:** Hwst approval of MB BA requirement list

Aloha Amy,

I sending this email to notify your department that our Hawaiian studies faculty voted on and approved our courses being listed for your new bachelor of arts requirements. Mahalo for this important opportunity to have Hawaiian knowledge included in your degree program.

Sincerely,
Kekuewa

# Amy Moran

**From:** Margaret McManus <mamc@hawaii.edu>
**Sent:** Tuesday, April 28, 2020 10:40 AM
**To:** Michael Guidry
**Cc:** Amy Moran; Stephanie Kraft-Terry
**Subject:** Re: BA MB Proposal documents

Aloha Amy,

I think this is wonderful. I don't see any issues with those courses either.

Margaret

Professor Margaret Anne McManus
Chairwoman of the Department of Oceanography
University of Hawaii at Manoa
Honolulu, Hawaii 96822

mamc@hawaii.edu
https://www.margaretmcmanus.com/
http://www.soest.hawaii.edu/oceanography/faculty/mcmanus.html

On Tue, Apr 28, 2020 at 10:33 AM Michael Guidry <guidry@hawaii.edu> wrote:

> My apologies Margaret.
>
> Forgot that reply does not include the attachments -- see attached
>
> Michael Guidry PhD
> Undergraduate Chair, Global Environmental Science Program
> Department of Oceanography
> School of Ocean and Earth Science and Technology
> University of Hawaii at Manoa
>
> 808.956.9935 (phone)
> 808.956.9225 (fax)
>
> 1000 Pope Road
> Marine Sciences Building, Room 205
> Honolulu, HI 96822
>
> ---------- Forwarded message ---------
> From: **Amy Moran** <morana@hawaii.edu>
> Date: Mon, Apr 27, 2020 at 2:19 PM
> Subject: BA MB Proposal documents

To: <guidry@hawaii.edu>
Cc: Stephanie Terry <kraft2@hawaii.edu>

Hi Michael,

The School of Life Sciences is putting in a proposal for a Bachelor of Arts degree in Marine Biology. The list of upper-division courses includes several in OCN and we wanted to check with you to see if you think this will have any negative impacts at your end.

The list of courses is on P 9 of the attached proposal.

Apologies for getting this to you so late in the semester, but we had a number of unforeseen delays. If you could get back to us this week, that would be much appreciated!

Hope you're doing well,
Amy

---
Amy Moran
School of Life Sciences
University of Hawaii at Manoa
Honolulu, HI 96822

# Amy Moran

**From:** Reece Jones <reecej@hawaii.edu>
**Sent:** Wednesday, August 12, 2020 1:28 PM
**To:** morana@hawaii.edu
**Subject:** Re: Request to add GEOG course to upper-level electives for new degree

Dear Amy,

Yes, please do list GEO 423 Marine Policy for your BA in Marine Biology. Note our alpha changed this fall to GEO from GEOG. If you are looking for other courses, you might also consider GEO 435: Political Geography of the Oceans.

Here is the course catalog listing:

GEO 435 Political Geography of Oceans (3) DS The geopolitics of the oceans and the law of the sea as applied to regions of conflict and cooperation in marine resource development and preservation. Focus on Indo-West Pacific, South China Sea, Arctic Ocean. Pre: junior standing or higher, or consent.

Thanks,
Reece

On Mon, Aug 10, 2020 at 1:57 PM Amy Moran <morana@hawaii.edu> wrote:

> Dear Reece,
>
> The School of Life Sciences is proposing a new degree, a BA in Marine Biology. We are planning to submit the full proposal early this fall, and w e would like to include a GEOG 423, Marine Policy, on the list of classes that students in the new major can take to meet upper-division elective major requirements. Is that OK with your department? Do you foresee any issues?
>
> Thanks, and please let me know if you have any questions or would like to see the degree proposal.
>
> Best wishes,
> Amy
>
> ---
>
> Dr. Amy Moran, Associate Professor

# Amy Moran

**From:** Reece Jones <reecej@hawaii.edu>
**Sent:** Wednesday, August 12, 2020 1:28 PM
**To:** morana@hawaii.edu
**Subject:** Re: Request to add GEOG course to upper-level electives for new degree

Dear Amy,

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Here is the course catalog listing:

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Thanks,
Reece

On Mon, Aug 10, 2020 at 1:57 PM Amy Moran <morana@hawaii.edu> wrote:

> Dear Reece,
>
> The School of Life Sciences is proposing a new degree, a BA in Marine Biology. We are planning to submit the full proposal early this fall, and we would like to include a GEOG 423, Marine Policy, on the list of classes that students in the new major can take to meet upper-division elective major requirements. Is that OK with your department? Do you foresee any issues?
>
> Thanks, and please let me know if you have any questions or would like to see the degree proposal.
>
> Best wishes,
> Amy
>
> ---
>
> Dr. Amy Moran, Associate Professor

School of Life Sciences

University of Hawaii at Manoa

Edmondson Hall 216, 2538 McCarthy Mall Road

Honolulu, HI 96822

(808) 956-6147

www.moranlab.org

www.polargiants.squarespace.com

--
Reece Jones
Professor and
Chair
Department of Geography and
Environment University of Hawai'i-
Manoa
http://www2.hawaii.edu/~reecej
Twitter: @reecejhawaii
Violent Borders: Refugees and the Right to Move (Verso Books, 2016) more info

# APPENDIX D:

# SIDE-BY-SIDE

# COMPARISON OF BA

# AND BS MARINE

# BIOLOGY DEGREES

| Major Requirements for BA in Marine Biology | Major Requirements for BS in Marine Biology |
|---|---|
| Admission: Open | Admission: Open |
| Application: NA | Application: NA |
| Min. major credits: 49 (62-66 including all related requirements) | Min. major credits: 59 (91-93 including all related requirements) |
| Min. C grade (not C-) in all courses | Min. C grade (not C-) in all courses |
| | |
| **Requirements** | **Requirements** |
| **Marine Biology Related Requirements (13 credits)** | **Marine Biology Related Requirements (28-30 credits)** |
| | ❑ MATH 215*[FQ] or 241*[FQ] or 251A*[FQ] |
| | ❑ MATH 216 or 242 or 252A |
| ❑ CHEM 161*[DP] / ❑ 161L*[DY] | ❑ CHEM 161*[DP] / ❑ 161L*[DY] |
| ❑ CHEM 162 / ❑ 162L | ❑ CHEM 162 / ❑ 162L |
| ❑ CHEM 272 / ❑ 272L | ❑ CHEM 272 / ❑ 272L |
| | ❑ PHYS 151*[DP] / ❑ 151L*[DY] or ❑ 170*[DP] / ❑ 170L*[DY] |
| | ❑ PHYS 152 / ❑ 152L or ❑ 272 / ❑ 272L |
| | |
| **Biology Core Courses (21 credits)** | **Biology Core Courses (27 credits)** |
| ❑ BIOL 171*[DB] / ❑ 171L*[DY] | ❑ BIOL 171*[DB] / ❑ 171L*[DY] |
| ❑ BIOL 172*[DB] / ❑ 172L*[DY] | ❑ BIOL 172*[DB] / ❑ 172L*[DY] |
| ❑ BIOL 220*[FQ] | ❑ BIOL/BOT 220 |
| ❑ BIOL 265 / ❑ 265L *(Fall only)* | ❑ BIOL 265 / ❑ 265L |
| ❑ BIOL 275 / ❑ 275L | ❑ BIOL 275 / ❑ 275L |
| | ❑ BIOL 375 / ❑ 375L |
| | |
| **Marine Biology Required Core (25-27 credits)** | **Marine Biology Additional Required Core (20 credits)** |
| ❑ OCN 201 | ❑ OCN 201 |
| ❑ BIOL 301 / ❑ 301L | ❑ BIOL 301 / ❑ 301L |
| | ❑ BOT 480 |
| | ❑ BIOL 485 / ❑ 485L |
| | ❑ MICR 401 / ❑ 401L |
| ❑ Group 1 Electives (minimum two courses) BIOL 465L, 485L; BOT 480; MICR 401L; OCN 310L | |
| ❑ Group 2 Electives (minimum three courses) BIOL 331, 406, 411, 465, 468, 485; BOT 480; MICR 401; OCN 310, 320, 331, 430 | |
| ❑ Group 3 Electives (minimum two courses) Includes courses in Group 2, plus: BIOC 441; BIOL 306, 325, 375, 390, 402, 454, 470; BOT 456, 470; GEO 423; HWST 353, 356, 456, 457; MATH 304, 305; MICR 485, 490; OCN 340, 403, 450, 454, 457 | |
| | |
| **Synthesis Experience (3 credits)** | **❑ BIOL 499: Directed Research or BIOL 403 (4 credits)** |
| ❑ BIOL 400, 403, 404, or 499; MARE 364 (UH Hilo) | |
| | **❑ BIOL 404: Capstone Course (3 credits)** |
| | |
| | **Approved Elective Courses (minimum 9 credits; see department for approved choices)** |
| | ❑ _____ ❑ _____ ❑ _____ |
| | |

# APPENDIX E:

# ARTICULATION WITH UH CC'S AND EXPLANATION OF 300-LEVEL COURSE REQUIREMENT IN YEAR 2

Transferring into UHM from CCs

Articulation between community college campuses and the proposed BA in Marine Biology at UHM will be similar to existing articulation pathways for the BS MB; the main difference between the first two years of the academic plan for the BS MB and the proposed BA is that the BA program has one fewer semester each of mathematics and physics. Kapi‘olani, Leeward, and UH Maui College already have transfer guides for the BS Marine Biology with course equivalencies for the first two years (except BIOL 301/L, explained below), and these could easily be modified to fit the BA Marine Biology. The first two years of the proposed BA MB contain no required courses that are not also in the BS MB.

As with the existing degrees in SoLS, our academic advisors will work with counselors from the Ka‘ie‘ie program to facilitate articulation.

Requirement of a 300-level course in the second year

Similar to the BS MB, BIOL 301/L (Marine Ecology and Evolution with lab) is recommended to be taken in the 2nd year of the BA MB if possible because it is a prerequisite for two 400-level required courses in the major, and because it allows students an immersive marine biology field experience earlier in their degree progress. However, most upper-division required courses in the BS MB do not have BIOL 301/L as a prerequisite, and many BS MB students take BIOL 301/L in their third year. Due to the additional flexibility built into the BA MB, transfer students will be able to take BIOL 301/L in their third year without impacting their graduation schedule. We would recommend that students planning to join the BA MB through articulation with a CC replace BIOL 301/L with BIOL 275/L in their second year (BIOL 275/L is currently placed in the fall semester of Year 3 in the proposed four-year plan), and take other marine biology courses at UHM in their first semester at UHM while waiting to take BIOL 301/L.

# APPENDIX F:

# CONSULTATION

# WITH UH HILO

# REGARDING

# POTENTIAL OVERLAP

# WITH BA MARINE

# SCIENCE AT UHH

7 January, 2022

Addendum to “Request Provisional Status for the Bachelor of Arts in Marine Biology at the University of Hawaii”

Consultation with UH Hilo
Similarity of BA in Marine Biology at UH Manoa to BA in Marine Science at UH Hilo

In attendance:
Steven Colbert, Associate Professor and Chair, Marine Science Department (UHH)
Marta deMaintenon, Professor, Marine Science Department (UHH)
Amy Moran, Professor, School of Life Sciences (UHM)
Peter Marko, Professor, School of Life Sciences (UHM)
Cliff Morden, Professor and Interim Director, School of Life Sciences (UHM)

On Tuesday, January 4, 2022, the above faculty from UH Hilo and UH Manoa met to discuss the relations of the BA degree in Marine Science (MS) at UH Hilo (UHH) and the proposed degree in Marine Biology (MB) at UH Manoa (UHM). We discussed how even though some of the coursework appears similar on the surface, the overall intent and content is fundamentally different in that UHH MS degree focus is on the bio-physical interactions in the ocean where the UHM MB degree focus is the ecology and evolution of the organisms within. Because they are BA degrees, both have many electives that are possible for students to build into their curriculum. Although it seems that a consequence of this is students could receive a double major (MS and MB) with only a few additional courses, this would be a very difficult undertaking due to the requirements from each university.

One of the positives that we all drew from our discussions was that we all agree having both programs available to us provides our units an opportunity to potentially interact in the future. This could be in promoting shared curriculum, interning at the sister-university location, or other aspects that will benefit the education of the students. The latter is the key element, the students will reap the benefits from having these additional options open to them. Although the broader integration would require changes to each school's programs, these are certainly discussions we should have in the future.

One of the concerns that we both shared is the impact on the growth of each program. Each of these programs, however, is growing, and it is certainly a necessity to have them available for students at each university. If there was broader overlap among the two degrees AND the degree was on the fringe of the size limit to sustain itself, then such competition would be detrimental to each program. However, with 200 students in Marine Science at UHH and nearly 500 students in Marine Biology at UHM, neither degree is a specialty major that is in jeopardy. Both degree programs are in fact operating beyond their capacities. Like many other core majors, it is important to have them offered at both institutions. Furthermore, the idea of a UHM BA program was motivated and designed to better serve the growing number of students in the UHM BS program with no intention of going to graduate school, not to attract additional students.

We pointed out how one of the differences is the education at UHH is more place-based with hands-on experiences focusing on many aspects of marine science in addition to biology whereas at UHM it is more lab-based and focused on biological principles and concepts with field experiences in marine biology context. This provides exciting opportunities for us both. As we move forward, we are looking forward to the future discussions about how we can jointly serve our students with curricula at both universities to assist both of our students to achieve their goals. As the UH system encourages more collaboration between campuses, we are at the front to take advantage of those opportunities.

Dr. Steven Colbert, Chair of the UHH Marine Science Department stated this was an accurate summary of our discussion and he supports our moving forward with the proposed BA in Marine Biology.

Donald O. Straney, Ph.D.
Vice President for Academic Planning and Policy

UNIVERSITY of HAWAI'I® SYSTEM

June 21, 2019

**MEMORANDUM**

TO: Michael Bruno
Provost
University of Hawai'i at Mānoa

FROM: Donald O. Straney, Ph.D.
Vice President for Academic Planning and Policy

SUBJECT: Approval of Authorization to Plan for Bachelor of Arts in Marine Biology

At the UH Officers meeting held on June 17, 2019, the Authorization to Plan for a Bachelor of Arts in Marine Biology was approved.

We will discuss the request with the Council of Chief Academic Officers at their meeting on June 26, 2019, at which time they can provide additional input.

Should you have any questions, please do not hesitate to contact me at 956-6897.

cc: Council of Chief Academic Officers
Wendy Pearson, Program Officer, UHM
Aloysius Helminck, Dean of Natural Science, UHM

Bachman Hall 204
2444 Dole Street
Honolulu, Hawai'i 96822
Telephone: (808) 956-6897
Fax: (808) 956-5286

DT 8963

UNIVERSITY of HAWAI'I®
MĀNOA

Office of the Provost

RECEIVED
19 MAY -6 P2:47
MANOA CHANCELLOR'S OFFICE

May 6, 2019

**MEMORANDUM**

TO: Donald Straney
Vice President for Academic Planning and Policy

VIA: David Lassner
President

FROM: Michael Bruno
Provost

SUBJECT: Authorization to Plan for Bachelor of Arts in Marine Biology

Attached please find an Authorization to Plan (ATP) for a Bachelor of Arts in Marine Biology from the UHM College of Natural Sciences. I believe that you will find that this proposal is responsive to state need and addresses several strategic goals of the Manoa Campus and the UH System. Per the review procedures:

> *The ATP is submitted by the Campus Chancellor to the System Vice President for Academic Planning and Policy for review by the UH Officers. The Vice President for Academic Planning and Policy will notify the campus of the results of the review.*

I recommend review by the UH Officers. Should you have any questions, please let me know.

Attachment
C: Dean Helminck
Biology Chair DeCouet
Program Officer Pearson

2500 Campus Road, Hawai'i Hall
Honolulu, Hawai'i 96822
Telephone: (808) 956-8447

UNIVERSITY of HAWAI'I®
MĀNOA

Colleges of Arts and Sciences
**College of Natural Sciences**
**Office of the Dean**



**MEMORANDUM**

April 18, 2019

TO: Michael Bruno
Provost

FROM: Aloysius Helminck
Dean, College of Natural Sciences

SUBJECT: Authorization to Plan (ATP) for Bachelor of Arts in Marine Biology at the University of Hawaii at Mana

The creation of a Bachelor of Arts degree in Marine Biology has been under discussion by the Marine Biology Steering Committee (made up of members from the departments of Botany, Biology, and Microbiology) for over a year. Drafts of the initial proposal were reviewed and approved by curriculum committees of both the Department of Biology and the College of Natural Sciences. A revised proposal was reviewed and supported by the College of Natural Sciences Program & Curriculum Committee on March 8, 2019.

We provide the attached ATP document, revised in April 2019, for review and comment and request that it be forwarded to the subsequent reviewing entity upon approval.

2565 McCarthy Mall, Keller Hall
Honolulu, Hawai'i 96822
Telephone: (808) 956-6451
Fax: (808) 956-9111
http://www.hawaii.edu/natsci/

UNIVERSITY of HAWAI'I® MĀNOA

Department of Biology

**MEMORANDUM**

**DATE**: 4/18/2019

**TO**: Aloysius Helminck
Dean, College of Natural Sciences

**FROM**:
Associate Chair, Department of Biology

H. Gert DeCouet
Chair, Department of Biology

**SUBJECT**: Request for Authorization to Plan an Academic Program: Bachelor of Arts in Marine Biology

**Background:**

The creation of a Bachelor of Arts degree in Marine Biology has been under discussion by the Marine Biology Steering Committee (made up of members of the departments of Botany, Biology, and Microbiology) for over a year. After receiving permission via email from the OVCAA to prepare an ATP, drafts of the attached ATP request were reviewed and approved by the Curriculum Committees of both the Department of Biology and the College of Natural Sciences. All courses required for the proposed BA in Marine Biology already exist. Depending on enrollment increases, new sections may need to be added to some MB courses, which could require the hiring of lecturers or adjustments in faculty teaching schedules. At the University level, the increase in tuition and lab fees should offset direct costs of running additional lab sections. The College of Natural Sciences is committed to supporting any increase in demand by redistributing resources and by focusing requests for new resources, space, and hiring in this area if needed.

**Action requested:**

Approval of Authorization to Plan a new degree program: Bachelor of Arts in Marine Biology

Attachments/Enclosures: ATP1

**APPROVED/DISAPPROVED:**

Aloysius Helminck, Dean

APR 19 2019
Date

2538 McCarthy Mall, Edmondson Hall 216
Honolulu, Hawai'i 96822
Telephone: 808.956.8303, Fax 808.956.4745
http://manoa.hawaii.edu/biology

# Authorization to Plan for New Academic Programs

1. **Campus, school/college and department/division proposing the new program**

   The Department of Biology in the College of Natural Sciences at UH Mānoa is proposing a new degree, a Bachelor of Arts in Marine Biology.

2. **Degree proposed and program objectives**

   The Biology Department at UH Mānoa requests authorization to plan a Bachelor of Arts in Marine Biology (BA MB) degree. The existing Bachelor of Science in marine Biology (BS MB) degree provides a comprehensive range of science and mathematics courses, and is designed to prepare students for a 'traditional' path to graduate school and careers in academia and research. However, the modern "Blue Economy," focused on improved stewardship of ocean resources for a sustainable future, provides opportunities for many new career paths that allow students to combine their passion for marine biology with their other talents and interests. These talents and interests are diverse, reflecting the diversity of the UH student body. Because of our unique geographic location and the University's reputation for excellence in marine research, the BS MB is a very popular and strong degree program that draws many students. The existing BS MB has only one free elective credit, however, giving students almost no opportunity to pursue learning in complementary areas that they are also passionate about. Our vision is that the BA MB will promote learning and career advancement for students who love marine biology and want to combine it with other fields of study. As examples, a BA MB could prepare students for (1) the growing field of science communication, by combining a solid background in marine biology with courses and writing, communication, journalism, graphic design, and/or art; (2) K-12 education, either formal or informal (e.g. outdoor education); or (3) marine environmental policy and management, including coral reef restoration, place-based marine management strategies, and sustainable aquaculture or tourism. Students in the BA MB program would be able to combine their degree with existing programs at UHM such as certificates in Sustainability (newly approved, Institute for Sustainability and Resilience), Law and Society (CAS), and Sustainable Tourism (STIM). They could also choose to minor in many complementary fields such as Communicology, English, or Art (science communication), Secondary Education (education), and Economics, Political Science, or Public Health (marine policy and management). If the ATP is approved, as part of the planning process for a full proposal we will reach out across units at UHM to identify particular groups of courses (as well as certificates, minors, and internships) that will help BA MB students pursue these types of goals.

3. **Alignment with the Campus and UH system mission, strategic plan and the Integrated Academic and Facilities Plan**

   The Marine Biology major at UH Mānoa exemplifies a degree that "*focuses on programs of excellence that emphasize Hawai'i's many strengths and advantages of location, population and geography.*" Our geographic location, Hawai'i's strong historical, cultural, and economic connection with the ocean, and the University's excellent reputation for marine research, all make

UH Mānoa a top choice for students interested in marine biology. The MB curriculum capitalizes on these unique strengths, with numerous field trips to learn first-hand within the Hawaiian waters and many opportunities for students to interact directly with local researchers and representatives from government organizations.

The proposed BA MB will also support UHM's goal to "*become more attractive to the best local high school graduates*," and to "*attract more top national and international students.*" The existing BS MB is already a popular and attractive degree that averages ~300-350 majors. We feel the BA MB would attract even more top local graduates and national and international students because it would allow students with strong interests in conservation, sustainability, policy, education, or science communication to develop those skills along with their MB degree.

**Justification of need**

In the 2013 established-status request for the BS MB, we reported that among graduates who responded to a survey, ~⅔ had continued on to graduate programs and ~⅓ to employed positions, mostly in MB-related fields. Many of these positions (and some of the graduate programs) were in areas such as education, conservation, and sustainability. The BA degree, by allowing flexibility in the courses students could choose to take, would allow them to better prepare for this wide range of fields.

If the ATP is approved, during the planning process we will gather information from potential employers in the state of Hawai'i to help align the BA MB with the translational skills that would benefit employers and strengthen the workforce.

4. **Demand for the program**

We surveyed the BS MB and Biology (BA and BS) majors to determine the level of demand for the proposed new degree and received 124 responses. When asked "*If you were starting college now, would you be interested in a BA degree in Marine Biology?*", 38% answered "yes" and 41% answered "maybe." Of the students who answered the question "*What would you view as the strongest reasons to pursue a BA in Marine Biology (as opposed to a BS)?*", 65% listed increased flexibility, citing their interest in taking courses that would help them prepare for marine biology-related careers in management, sustainability, education, conservation, or humanities. 12% indicated a BA would be appealing because it would make it easier to be a double major.

When we asked "*Please share any other insight you have on the proposed BA in Marine Biology,*" students said many positive things, including:

*"It allows for more diversity for students pursuing careers in marine bio such as education and public outreach, like myself."*

*"I think this would be a great option for those uninterested in becoming a researcher and/or professor in the future. I think other classes, such as those geared towards ocean conservation, sustainability, politics, etc. should be included."*

*"Some people want to pursue marine bio for conservation purposes but also enjoy the arts as well with a BA in marine bio students are able to explore both interests they have. Please add this*

*opportunity it would be amazing for so many reasons."*

The BS MB is one of the top majors indicated for students applying for Fall 2019 entrance, with a ~32% increase in admitted majors compared to Fall 2018. Particularly in light of the anticipated growth in the BS MB, we feel the BA MB is important because it will allow students to prepare for a wide diversity of careers in marine biology-related fields in the state of Hawai'i and elsewhere.

5. **Non-duplication of programs**

UH-Hilo offers BA and BS degrees in Marine Science (MS), and the Department of Oceanography at UHM offers a BS degree in Global Environmental Sciences (GES). Otherwise, there are no potentially overlapping degree programs within the UH system. The focus of the MS degree at UHH is oceanography and ocean science; students take required coursework in biological, chemical, physical, and geological oceanography. The emphasis of the GES degree at UHM is the Earth and Earth's physical, chemical, biological, and human systems. In contrast, the current BS MB degree gives students a strong background in biology as well as the basic principles of the diversity, structure, and function of marine organisms, and the relationships between marine organisms and their environment. The proposed degree will retain the biological focus of the BS degree; thus, this new degree, like the BS MB, will be distinct from MS at UHH and GES at UHM.

6. **Potential risks associated with the new program**

Potential risks are similar to the risks associated with existing programs, such as changes in overall enrollment. If the BA MB is not popular and very few students choose to enroll, our program costs will remain stable since we are not proposing new required courses beyond what is already part of the BS MB.

7. **New Resources**

We do not propose to create any new courses for the BA MB, so if overall enrollment in MB remained constant, no new resources would be needed to support the BA. If the proportions of MB BS/BA majors followed the patterns in the Biology BS/BA degrees, then with no growth the BA degree would serve ~180 students (calculated from Fall 2018 data: 357 BS MB majors, adjusted by the ratio BA Biology (271) to BS Biology (541) majors).

If the creation of the BA MB increased overall enrollment in MB, it is likely that new sections would need to be added to some MB courses and laboratories (which are currently near capacity) to maintain the quality and experiential emphasis of these classes. At the University level, the increase in tuition and lab fees should offset direct costs of running additional lab sections. The College of Natural Sciences is committed to supporting any increase in demand by redistributing resources and by focusing requests for new resources, space, and hiring in this area if needed.

Signature Page:

*Signature indicates that the person has reviewed the ATP1 and supports the proposed program. Signature page is to be completed upon submission to the VPAPP.*

*Dean/Department/Division Chair:*

| Signature | Print Name | Date |
|---|---|---|
| | Aloysius Helminck | APR 2 5 2019 |

Provost:

| Signature | Print Name | Date |
|---|---|---|
| | Laura E. Lynch for Michael Bruno | 4/30/19 |

President:

| Signature | Print Name | Date |
|---|---|---|
| | David Lassner | MAY - 6 2019 |

**ATP2 (2 page limit)**

Upon a positive review of the ATP1 by the ATP1 committee, the campus will complete the ATP2. The following items are to be addressed in the ATP2:

A. If a similar program exists, consult with other campus(es)
    a. The VCAA of the other UH campus(es) with relevant program(s) by the VCAA of the campus proposing the degree/certificate
    a. Colleagues in related disciplines from other campuses
    b. Identify who (campus, name and title) has been consulted and the date(s) of consultation
B. Impact on accreditation (program and regional)
C. Timeline for submission of new program proposal to:
    a. Council of Chief Academic Officers (CCAO)
    b. BOR Committee on Academic and Student Affairs
    c. Board of Regents

After completion of the campus curricular review process, the ATP1 and ATP2 will be submitted to CCAO by the Campus VCAA.

Once the ATP1 and ATP2 are endorsed by CCAO, the campus may proceed with the development of a new program proposal. New program proposals are to be submitted to CCAO within two years of endorsement of APT1/2 by CCAO.

Process Reviewed by CCAO: 10/27/16
Process Reviewed by UH Officers: 2/8/17

Revised 10/19/17

*Presented to the Mānoa Faculty Senate by the Committee on Academic Policy and Planning (CAPP) for a vote of the full Senate on November 17, 2021, a resolution supporting the proposal for a Bachelor of Arts in Marine Biology. Approved by the Mānoa Faculty Senate on November 17, 2021 with 46 votes (95.83%) in support; 2 votes (4.17%) opposed; and 0 abstentions.*

## RESOLUTION SUPPORTING THE PROPOSAL FOR A BACHELOR OF ARTS IN MARINE BIOLOGY

**WHEREAS**, the School of Life Sciences currently offers Bachelor of Arts (BA) degrees in Biology, Botany, and Microbiology, as well as Bachelor of Science (BS) degrees in Biology, Botany, Marine Biology, Microbiology, and Molecular Cell Biology; and

**WHEREAS**, surveys of both students and recent graduates in Marine Biology indicate demand for a degree in Marine Biology with more flexibility than offered by the BS in Marine Biology; and

**WHEREAS**, this proposed program would retain core elements of the BS in Marine Biology while supporting students in deepening their knowledge of complementary subjects, which may lead to careers and contributions to society that do not require graduate study in Marine Biology; and

**WHEREAS**, this proposed program would complement the existing BA in Interdisciplinary Studies: Social Sciences of Oceans, by ensuring its graduates are more grounded in Biology and Chemistry; and

**WHEREAS**, this proposed program would complement the existing BA and BS programs in Marine Sciences at the University of Hawai`i at Hilo, which have greater focus on Oceanography and less emphasis on Marine Biology than the proposed program; and

**WHEREAS**, this proposed program will be assessed by the existing assessment committee of the School of Life Sciences in consultation with the existing Marine Biology steering committee; and

**WHEREAS,** no additional resources are needed for this program; therefore,

**BE IT RESOLVED**, that the Mānoa Faculty Senate recommends approval of the proposal to establish a Bachelor of Arts degree in Marine Biology in the School of Life Sciences at the University of Hawai'i at Mānoa.

**UNIVERSITY OF HAWAI'I AT MĀNOA FACULTY SENATE**
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