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In Banner	
MTVCOMP/Codeset	
Master Curriculum	
CIP Code	
Program Code	
Program Description	

**Reset Form**

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

## NEW OR MODIFY PROGRAM CODE

**New Program Code**       **Modify Program Code**      Date: 2/8/2016

**REQUESTOR CONTACT INFORMATION**

Name Shelby Wong      Campus UH Hilo  
 Title Curriculum & Catalog Coord      Email shelbyw@hawaii.edu  
 Office/Dept OVCAA      Phone (808) 932-7927

**NEW PROGRAM CODE TO CREATE**

Institution HIL - UH Hilo      Campus HIL - UH Hilo  
 Level UG - Undergraduate      Effective Term Fall 2016

	Code <small>(Max. Characters)</small>	Description	Check if requesting new code:
College	(2) <u>AR</u>	<u>Arts &amp; Sciences</u>	<input type="checkbox"/> See Banner form STVCOLL
Department	(4) <u>NATS</u>	<u>Natural Sciences</u>	<input type="checkbox"/> See Banner form STVDEPT
Degree/Certificate	(6) <u>BS</u>	<u>Bachelor of Science</u>	<input type="checkbox"/> See Banner form STVDEGC
Major	(4) <u>BIOL</u>	<u>Biology</u>	<input type="checkbox"/> See Banner form STVMAJR
Concentration	(4) <u>BMDS</u>	<u>Cell, Molecular &amp; Biomed Sci</u>	<input type="checkbox"/> See Banner form STVMAJR
Minor	(4) _____	_____	<input type="checkbox"/> 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:  
N/A

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 Years

**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

ADDITIONAL COMMENTS

Track Under the BS- Biology. On the online application- students should have the option of:

BS- Biology:  
BMD5 Cell, Molecular & Biomed Sci  
EEC- Ecology, Evolution & Conservation

ATTACHMENTS

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

BOR Meeting Minutes & Supporting Documents  Curriculum

**Chancellor Approved:** Certificates related to authorized BOR program & Associate in Technical Studies (ATS) Degree

Memo from Chancellor to notify VPAA about new program  Curriculum

For new certificates approved by the Chancellor, the related BOR authorized academic program is:

VERIFICATIONS

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

**Registrar:**

Chelsea Kay-Wong

Print Name



Signature

2/29/16

Date

**Financial Aid Officer:**

Sherrie Padilla

Print Name



Signature

2/29/16

Date

*For Community Colleges, verification of consultation with OVPCC Academic Affairs:*

Print Name

Signature

Date



March 3, 2016

**MEMORANDUM**

**TO:** Donald Straney, Chancellor  
University of Hawai'i at Hilo

**FROM:** Matthew Platz  
Vice Chancellor for Academic Affairs  
University of Hawai'i at Hilo

**SUBJECT:** Request for Approval of Program Codes for use at UH Hilo

**SPECIFIC ACTION REQUESTED:**

We request that the following new program codes be approved for use. All programs below were reviewed and approved during the 2015-2016 curriculum review cycle.

Degree Program Tracks:

BA-ANTH-MANT Anthropology BA, Medical Anthropology Track  
BA-GEOG-ENVS Geography, BA, Environmental Studies Track  
BS-BIOL-BMD5 Biology, BS, Cell, Molecular and Biomedical Sciences Track

New Subject Certificate Programs:

SC-LSTU-PREL Pre-Law Certificate  
SC-NURS-HCMG Healthcare Management Certificate  
SC-CHEM-PPHR Pre-Pharmacy Certificate  
SC-ENG-CWRT Creative Writing Certificate  
SC-HIST-PHIS Public History Certificate  
SC-AG4-ENSM Energy Science Certificate, Management & Policy Track  
SC-AG4-ENST Energy Science Certificate, Technical Track  
GCER-PHRM-HSCR Health Sciences Research Certificate  
GCER-PHRM-HCAL Healthcare Leadership Certificate  
GCER-CPP Clinical Psychopharmacology Certificate  
GCER-CPP-PSP Psychopharmacology Certificate

**RECOMMENDED EFFECTIVE DATE:**

We request the effective date of Fall 2016 for all program codes.

**ADDITIONAL COST:**

There is no additional cost associated with this request.

**PURPOSE:**


The purpose of this request is to request approval for new program codes from the UH System Office of Institutional Research for the above-mentioned degree and certificate programs. These programs were proposed, reviewed and approved during the 2015-2016 curriculum review cycle.

The three degree tracks are new tracks under existing BOR approved degree programs and the ten certificate programs are all new subject certificate programs.

**ACTION RECOMMENDED:**

We recommend that you approve the new program codes for use for the above-mentioned degree and certificate programs.

**APPROVED/DISAPPROVED:**

  
\_\_\_\_\_  
Donald Straney, Chancellor

3/4/16  
\_\_\_\_\_  
Date

Cc: Risa Dickson, UH System Vice President for Academic Planning & Policy  
Zachary Street, Interim Director of Admissions  
Chelsea Kay-Wong, Interim Registrar

UH SYSTEM OFFICE  
CHANCELLOR'S OFFICE

2016 MAR -7 AM 8:50

# UH Hilo

<b>Degree:</b>	Bachelor of Science
<b>Division:</b>	Biology
<b>Title:</b>	BS in Biology, Cell, Molecular, and Biomedical Sci
<b>Description:</b>	The Department of Biology has voted to change the name of this BS to "Cell, Molecular, and Biomedical Sciences" Track. Note- could not fit all letters into title box above
<b>Effective Date:</b>	Fall 2016

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## 1. Is this a proposal for

**(a) modification of an existing undergraduate or graduate program/degree/major/minor/certificate?**

**(b) a new certificate or minor or track within an existing baccalaureate or graduate program?**

**(c) a proposal for an individual liberal studies major equivalent?**

**(d) a request for Approval To Plan a new graduate or undergraduate degree program (ATP)?**

**(e) a new graduate degree program or a new baccalaureate degree program?**

**If (a) or (b), please answer all questions in this proposal form.**

**If (c), provide student's name, student ID, faculty advisor's name, and title of proposed program in the space below; then answer question 2 only, and attach the proposal and advisor's letter.**

**If (d), answer only questions 1 and 9 and attach your request for Approval to Plan.**

**If (e), answer all questions and attach both the signed, approved ATP for your proposed program and the program proposal by clicking the "Attachment" tab at the bottom of the proposal form.**

**The BOR E5.201 template for new programs and budget template are posted on the VCAA Curriculum Resources page:**

**<http://hilo.hawaii.edu/uhh/vcaa/CurriculumResources.php>**

**Consult CurrCtrl campus administrator Jon Awaya [awayaj@hawaii.edu](mailto:awayaj@hawaii.edu) for assistance.**

**(a) modification of an existing undergraduate program, B.S. Biology, Cellular and Molecular Track.**

## 2. Please answer the following, for both new programs and modifications, numbering your answers.

**1. Specify (a) the number of credits required for the program and (b) the number of elective credits.**

**2. Specify the minimum required GPA for courses taken for the major, minor or certificate. Unless otherwise stipulated here, the minimum required GPA will be set as 2.0 (C) in Banner.**

**3. Specify the minimum acceptable grade for each course taken for the major, minor,**

**or certificate. Unless otherwise stipulated here, the minimum acceptable grade will be set as 1.0 (D) in Banner.**

- 1.(a) total credits: 120; 80 required for the program (b) 0 elective credits
2. 2.0
3. C-

**3. How does the NEW program or program modification benefit students, the curriculum, and the institution, and how does this change relate to or impact other programs at the university?**

No impact on other departments. The new name is a better description of the major for the students.

Also requesting to change Chemistry course numbering per the approved proposal by the Dept. of Chemistry to align with the UH system.

**4. Describe any additional library resources, facilities, equipment or other resources required for the new or modified program and provide an estimate of such costs.**

**Type in "None" if appropriate.**

No new resources

**5. Describe any additional faculty required for the new or modified program and provide an estimate of such costs.**

No new faculty

**6. If this is a new program or a new certificate or a minor or a new track within an existing program, copy and paste from a Word document into the window below a catalog-ready list of the graduation (or minor or certificate) requirements, including required courses and acceptable electives.**

**If this is a program modification, copy and paste the current requirements into the window below; strike out portions to be deleted, and underline any new or additional portions.**

**Reminder: This proposal is for one type of program. Include requirements for only one type of program: the BA, or the minor, or the certificate, as indicated by the type of program you selected when you created this proposal.**

No Change to Curriculum for Fall 2016.

## **B.S. in Biology: Cell, ~~and~~ Molecular, and Biomedical Sciences Track Requirements**

## Group 2. Major Requirements and Assigned Credits (81 credits)

### 1. Required courses from Biology (44)

- o BIOL 175-175L Introductory Biology I (3), Introductory Biology I Lab (1) <sup>1</sup>
- o BIOL 176-176L Introductory Biology II (3), Introductory Biology II Lab (1) <sup>1</sup>
- o BIOL 270-270L Intermed Cell & Molecular Biol (3), Inter Cell & Molecular Bio Lab (1)
- o BIOL 280 Biostatistics (3)
- o BIOL 281-281L General Ecology (3), General Ecology Lab (2)
- o BIOL 357 Evolution (3)
- o BIOL 375-375L Biology of Microorganisms (3), Biology of Microorganisms Lab (1)
- o BIOL 410-410L Biochemistry (3), Biochemistry Lab (2)
- o BIOL 415-415L Cell Biology (3), Cell Biology Lab (2)
- o BIOL 466-466L Genetics (3), Genetics Lab (2)
- o BIOL 495A-495B Biology Seminar (1), Biology Seminar (1)

### 2. Required courses from related fields (37)

- o ~~CHEM 124-124L~~ 161-161L General Chemistry I (3), Gen Chemistry I Lab (1)
- o ~~CHEM 125-125L~~ 162-162L General Chemistry II (3), Gen Chemistry II Lab (1)
- o CHEM 241-241L Organic Chem I (3), Organic Chem I Lab (1)
- o CHEM 242-242L Organic Chem II (3), Organic Chem II Lab (1)
- o One or more courses from the selection:
  - ENG 225 Writing for Sci & Technology (3)
  - ENG 286A Intro to Fiction Writing (3)
  - ENG 287 Introduction to Rhetoric (3)
  - PHIL 316 Science, Technology & Society (3)
  - PHIL 327 Bioethics (3)
- o PHYS 170-170L Gen Phys I: Mechanics (4), Gen Phys I Lab (1)
- o PHYS 171-171L Gen Phys II: Elec & Magnetism (4), Gen Phys II Lab (1)
- o MATH 205-206 Calculus I (4), Calculus II (4)

<sup>1</sup> *Biology 175 and 176 are offered every semester, and can be taken in either order. Also for BIOL 175 Introductory Biology I (3) and BIOL 176 Introductory Biology II (3), the lab section must be taken concurrently with the lecture.*

## Total Semester Hours Required for the B.S. in Biology: Cell, and-Molecular, and Biosciences Track

120 credits required.

## Additional Courses Recommended For Specific Plans After

## Graduation

- **Graduate studies in biology:** At least two semesters of Directed Studies (BIOL 199, 299, 399, or 499).
- **Application to medical, pharmacy, dental, veterinary school or other health-related fields:** At least one semester of Directed Studies (BIOL 199, 299, 399, or 499) and participation in volunteer and shadowing experiences in the local medical, pharmacy, dental, or veterinary community as appropriate. As prerequisite courses for professional schools may vary, students should seek advising early in their academic careers to develop an academic plan.
- **Careers that may include teaching:** one or more semesters of Teaching Assistance and Tutoring in Biology (BIOL 496 Tchg Asstance & Tutorg in Biol (1–3)).
- **Careers in environmental biology:** a course in geographic information systems (GEOG 480 Geog Info Sys & Visualization (3)) or GEOL 445 GIS for Geology (3)).

## Notes

1. Students must earn at least a 2.0 GPA in courses required for the major.
2. BIOL 101 General Biology (3) and BIOL 101L Gen Biol Lab (1) are non-major courses and do not count toward the major or minor in Biology.
3. 100-level courses should be completed by the student prior to enrollment in 200-, 300-, or 400-level courses.
4. Students should begin chemistry courses their freshmen year if they plan to complete their academic program in four years. Chemistry courses are often prerequisites for required biology classes.
5. Students must earn a minimum grade of "C-" in all required and prerequisite courses.
6. The upper division credits needed for graduation for all degrees in Biology are met in the process of completing these degrees.
7. To earn a Bachelor of Science degree in Biology, students must fulfill the requirements for the major and meet all of the University's other baccalaureate degree requirements. (Please see the Baccalaureate Degree Requirements in this catalog.)
8. Many upper-level Biology courses are writing intensive and therefore offer the ability for students to complete that university requirement. In these courses students write a series of laboratory reports demonstrating their ability to perform experiments and to organize, analyze, and interpret the quantitative results of experimental work.
9. Students completing the B.S. in Cell and Molecular Biology can choose to take one additional 4-credit CHEM course at the 300- or 400-level to receive a Chemistry Minor.
10. Students wishing to make timely progress toward graduation are urged to pay careful attention to all degree requirements.



11. In addition, when planning a schedule of courses, it is imperative to be aware of course prerequisites and the frequency with which courses are offered. This information is available in the [course listings](#) in this Catalog.
12. To ensure progress toward degree completion, students are urged to meet with an advisor each semester before registering.

- 7. List any new courses or modified courses being proposed with this program proposal, providing alpha, number, and title of each one. The proposals for these new/modified courses MUST be submitted at the same time as this program proposal, to ensure proper review by approvers. Specify "Proposal submitted" next to each course in your list.**

BIOL 340 (3) Neurobiology (new course)- Proposal Submitted

BIOL 461 (3) Immunology (new course)- Proposal Submitted

Both courses will count as Biology Electives, not required courses for the degree.

- 8. Does this new or modified program involve courses offered by other departments? If not, type in "no."  
If yes, please attach an email (in PDF) or other document from the chair(s) of the other department(s) approving the inclusion of those courses by alpha, number, and title.**

**To attach, click on the ATTACHMENT button at the bottom of this page, next to the SUBMIT button.**

No

- 9. Please record the department vote approving the proposed change(s): Approve, Not Approve, Abstain; give the date of the vote.**

Date: 9/28/15

Vote: 8,0

Administrative Approval granted by the VCAA for the Chemistry numbering changes 11/5/2015.

- 10. Provide other attachments that you believe will be useful and informative to reviewers and approvers.**

NA

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**Campus:** HIL  
**Updated By:** SHELBYW  
**Updated Date:** 01/21/2016 10:55 AM

Program Detail: BS in Biology, Cell, Molecular, and Biomedical Sci CAS-NS-BIOL -

[Approval History](#) | [Approver Comments](#) | [Approval Status](#) | [Action Log](#)

Approval History back to top

**10/07/2015 - SHELBYW**

Registrar and Curriculum Office Completed Review (Vote for: 0; Vote against: 0; Vote abstain: 0)

**10/07/2015 - PJHART**

(Vote for: 0; Vote against: 0; Vote abstain: 0)

**10/08/2015 - EKHO**

I approve the modifications in the BS in Biology, Cell, Molecular, and Biomedical Sci as proposed (Vote for: 1; Vote against: 0; Vote abstain: 0)

**10/21/2015 - LAUER3**

(Vote for: 4; Vote against: 0; Vote abstain: 0)

**10/22/2015 - SUSANB**

(Vote for: 0; Vote against: 0; Vote abstain: 0)

**11/02/2015 - NFURUMO**

(Vote for: 7; Vote against: 0; Vote abstain: 0)

**11/24/2015 - MPLATZ**

(Vote for: 0; Vote against: 0; Vote abstain: 0)

Approval Comments back to top

Reviewer comments (0)

Approval comments (0)

Review within approval comments (0)

Approval Status back to top

**Completed approvals**

Search:

Sequence	Approver	Title	Position	Date	Role	Approved	Progress
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No data available in table

Showing 0 to 0 of 0 entries

**Pending approvals**

Search:

Sequence	Approver	Title	Position	Delegate
3	EKHO	DIVISION CHAIR, NATURAL SCIENCES	ASSOCIATE PROFESSOR, CHEMISTRY	
4	LAUER3	ASST PROF	CHAIR CAS CURRICULUM REVIEW COM.	
7	MPLATZ	VCAA	VCAA	
6	NFURUMO	PROFESSOR	CHAIR, FAC CONGRESS CURRICULUM REVIEW COM.	

2	PJHART	PROFESSOR	FACULTY	
1	SHELBYW	CURRICULUM COORDINATOR	CURRICULUM COORDINATOR FOR ACADEMIC AFFAIRS	CKWONG
5	SUSANB	PROFESSOR	ASSOC DEAN CAS	

Showing 1 to 7 of 7 entries

Action Log [back to top](#)

Show  entries Search:

User	script	Action	Date
MPLATZ	ACTION	Save history - BS in Biology, Cell, Molecular, and Biomedical Sci	11/24/2015 11:51 AM
MPLATZ	ACTION	Program approval by MPLATZ - BS in Biology, Cell, Molecular, and Biomedical Sci	11/24/2015 11:51 AM
MPLATZ	REMOVE	Approve Program Proposal - BS in Biology, Cell, Molecular, and Biomedical Sci	11/24/2015 11:51 AM
MPLATZ	ACTION	CC: Program Notification (PJHART) - BS in Biology, Cell, Molecular, and Biomedical Sci	11/24/2015 11:51 AM
PJHART	ADD	Proposed Program Approved - BS in Biology, Cell, Molecular, and Biomedical Sci	11/24/2015 11:51 AM
PJHART	ADD	Outline approved task (NotifiedWhenApproved) - BS in Biology, Cell, Molecular, and Biomedical Sci	11/24/2015 11:51 AM
MPLATZ	ACTION	Program final approval by MPLATZ - BS in Biology, Cell, Molecular, and Biomedical Sci	11/24/2015 11:51 AM

Showing 1 to 7 of 7 entries First Previous 1 Next Last



Princess Soares &lt;pfrederi@hawaii.edu&gt;

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## MINOR-BIOE

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Susan Nishida &lt;susansyn@hawaii.edu&gt;

Mon, May 23, 2016 at 3:14 PM

To: Princess Soares &lt;pfrederi@hawaii.edu&gt;, Pearl Iboshi &lt;iboshi@hawaii.edu&gt;, Shelby Wong &lt;shelbyw@hawaii.edu&gt;, Joanne Itano &lt;itano@hawaii.edu&gt;

Cc: Melissa Tome &lt;mtome@hawaii.edu&gt;

All,

After consulting with a number of folks, I believe the following summarizes the issue:

- Hilo approved two minors based on the two BS Biology tracks; Cell and Molecular Biology track and Ecology, Evolution and Conservation track (see attached program documentation).
- When the minor was created, it used BIOL; however, it should have used the minors attached to the two BS Biology tracks (instead of attaching to what appears as BA BIOL).
- Hilo plans to retain the two BS Biology tracks and would like two minors to reflect those two tracks (BA Biology does NOT have a minor).

I believe the following is the best way to resolve Hilo's dilemma:

- For the Ecology, Evolution and Conservation track, the minor box should be activated for this major code (EEC) and the campus should use EEC for coding all Hilo students seeking the Ecology, Evolution and Conservation track minor (not BIOE).
- For the Cell and Molecular track, Hilo has submitted a request to change the code to something else to reflect the title change (UHM uses CMB and their old code was BMD5). When this change is made, the minor box should be activated for this major code and the campus should use this code for coding all Hilo students seeking the Cell and Molecular track minor.

If everyone is OK with this proposed solution, the following actions should occur:

- Melissa Tome in Banner will activate the EEC minor in Banner
- Hilo will need to recode students with the EEC minor so their minor description appears correctly (and update STAR, if needed)
- Princess will work with Hilo to determine how best to recode the Cell and Molecular track and get any documentation needed to support the EEC minor

**Please let the group know if you have any concerns by end of day on Tuesday, May 24.** If there are no concerns raised, Melissa will activate the EEC minor code on Wednesday and the campus can recode the student and confer their degree. If you have any questions and/or need further clarification, please let me know.

Thanks!

-Susan

On Thu, May 12, 2016 at 9:31 AM, Princess Soares &lt;pfrederi@hawaii.edu&gt; wrote:

Aloha Joanne and Susan,

UH Hilo is wanting to change the description for the minor code BIOE. Currently, the description is Biology, but according to the campus it should have been Ecology, Evolutn, Conserv Biol. Unfortunately, Hilo does not have any supporting documents of the minor, but has always offered the minor. When checking the Academic Program Actions Report by Academic Planning and Policy, no new minors have been reported at UH Hilo since the Annual 1996-97 report.

The Biology minor has two tracks and uses minor codes BIOL (Biology) and BIOE.

[Quoted text hidden]

[Quoted text hidden]



**UHH Biology Minor- Add EEC Track 1999.pdf**  
2083K

CNC done 6/16/99

off Fall 1999

MAR 11 1999

PLEASE SUBMIT ORIGINAL AND 6 COPIES TO YOUR DIVISION CHAIR

APPLICATION FOR PROGRAM MODIFICATION  
COLLEGE OF ARTS AND SCIENCES, UNIVERSITY OF HAWAII AT HILO



TYPE OF PROGRAM: /  / MAJOR /  / MINOR /  / CERTIFICATE /  / MASTERS

1. Division: Natural Sciences Department: Biology

Name of Program: Biology BA / Major & Minor

Copied... see in minor

2. Description of existing program as it is in the current catalog: (Put entire statement on another sheet if space is not sufficient here. Underscore all parts to be changed or deleted.)

ATTACHED: Existing Program Description

3. Description of modified program in college catalog form. (Put entire statement on another sheet if space is not sufficient here. Underscore all new or changed parts.)

ATTACHED: Modified Program Description

4. Brief statement of reasons for the requested modification: (Put entire statement on another sheet if space is not sufficient here.)

ATTACHED: Reason For Requested Modification

Program Modification of Biology BA

Leon Hallacher  
Name of submitter (please type)      LE Hallacher  
Signature      Date: 17 NOV 98

Leon E. Hallacher  
Name of Department Chair      LE Hallacher  
Signature      Date: 17 NOV 98  
Department Vote: 8 1 0 1 0

\_\_\_\_\_  
Name of cross-listed Department Chair      \_\_\_\_\_  
Signature      Date:   /  /    
Cross-listed Department Vote:   /  /  

\_\_\_\_\_  
Signature of Division Chair \*  
\*or Liberal Studies Coordinator      \_\_\_\_\_  
Date        /  /    
Signature of Division Chair        /  /    
Date      11/17/98

**NOTE: THE SUBMITTER FORWARDS THIS APPLICATION TO THE FACULTY SENATE CHAIR AFTER DIVISION CHAIR(S) SIGNATURE(S).**

Academic Affairs Committee:      Approved       Not Approved   
  /  /        Date: 11/18/98      Vote: 5 1 0 1 0  
Signature of AAC Chair        /  /        Date: 2/17/99      Vote: 6 0 0  
AAC Comments: CRC (AAC chair) Approved

Senate:      Approved       Not Approved   
  /  /        Date: 3/10/99      Vote: 13 1 0 1 0  
Signature of Senate Chair

Senate Comments:

Dean:      Approved       Not Approved       Articulation: N/A   
  /  /        Date: 3/10/99      Completed:   
Signature of Dean

Dean's Comments:

Signature page returned to: Senate Chair on 3/11/99 (date)  
Submitter on 3/11/99 (date)  
Copy of Application sent to Course Inventory/OSS - Records on 3/11/99 (date)  
Placed in catalog on \_\_\_\_\_ (date)

**APPLICATION FOR PROGRAM MODIFICATION  
COLLEGE OF ARTS AND SCIENCES, UNIVERSITY OF HAWAII AT HILO**

Division: Natural Sciences

Department: Biology

Program: Bachelor of Arts Degree in Biology

**EXISTING PROGRAM DESCRIPTION**

The Biology program provides the student with "hands-on" training in a wide variety of disciplines ranging from natural history of the Hawaiian Islands to cell biology and microbiology. Small class sizes allow students to accompany professors to tide pools to study marine invertebrates and algae and to work individually on the scanning and transmission electron microscopes. Upper division biology majors are encouraged to participate in research projects directed by the faculty. The program prepares students for further study in graduate schools in the biological sciences, as well as professional schools in medicine, dentistry, veterinary medicine, and other health related programs. The program also provides the scientific background for high school biology teaching.

Instruction in biology includes a variety of classroom, laboratory, and field work which emphasizes the unique terrestrial and marine environment of Hawaii. Classes in natural history plan excursions into volcanic areas and tropical rain forests to study plant succession and unique biomes. Minority students headed for professional careers in the health sciences may apply for participation in the Minority Schools Biomedical Research Support Program funded by the National Institute of Health.

**Major: (B.A. Option) 38 semester hours in biology**

The following are required for all majors who choose to seek the B.A. degree in Biology:

**Major Requirements:**

Biol 150-150L, 153-153L, 270, 275-275L, 281, 380, 410-410L, 415, 466, 495A, 495B, a minimum of one additional advanced laboratory course chosen from 415L or 466L, and a minimum of two units of biology elective as a lecture course, laboratory course, or directed research.

**Supplemental Requirements:**

General chemistry (Chem 124-124L, 125-125L), organic chemistry (Chem 241-241L, 242-242L); college physics (Phys 106-170L, 107-171L) or general physics (Phys 170-170L, 171-171L); and applied calculus (Math 115) or calculus (Math 205-205L). Forty-five upper division credits needed for graduation are met in the process of completing this degree.



The following is also recommended: (I) majors planning to pursue graduate studies in cell and molecular biology take both Biol 415L and 466L, Math 205-205L, 206-206L, courses in quantitative analysis and physical chemistry (Chem 330-330L and 350-350L or 351-351L), and at least two semesters of directed research (Biol 399 or 499); (II) majors planning to pursue graduate studies in conservation biology, ecology, and evolution, or marine biology take additional electives in those subject areas chosen from Biol 157, 171-171L, 181, 250, 264, 301-301L, 309, 360, 371-371L, 372, 382, and at least two semesters of directed research (Biol 399 or 499); and (III) majors planning to apply to medical/dental/veterinary school take human anatomy and physiology (Biol 243-243L and 244-244L) and participate in volunteer and shadowing experiences in the local medical/dental/veterinary community as appropriate.

**Minor: 21 semester hours in biology**

Required: Biol 125 or 270, 150-150L, 153-153L, 275-275L, 281 and three additional semester hours of biology in courses numbered above Biol 150.

No University of Hawaii at Hilo biology courses numbered below 125 are required for, or credited toward, the major or minor in Biology.

**MODIFIED PROGRAM DESCRIPTION**

The Biology program provides students with "hands-on" training in a wide variety of disciplines ranging from evolution, ecology, and conservation biology to cell and molecular biology. Instruction includes a variety of classroom, laboratory, and field work which emphasizes the unique terrestrial environment of Hawaii. Classes make excursions into volcanic areas and tropical rain forests to study ecological and evolutionary processes. Students are afforded individual attention and provided with the opportunity to work individually on advanced equipment like the transmission electron microscope. Upper division biology majors are encouraged to participate in research projects directed by the faculty. Two degree options **and multiple tracks** prepare students for the job market or further study in graduate school in the biological sciences, as well as professional schools in medicine, dentistry, veterinary medicine, and other health related programs. The program also provides the scientific background for teaching biology at the intermediate and high school levels. Minority students headed for professional careers in the health sciences may apply for participation in the Minority Schools Biomedical Research Support Program funded by the National Institute of Health.



Two degree options are available to students interested in studying biology: the Bachelor of Arts in Biology and the Bachelor of Science in Biology. In addition, a biology minor is available.

Students who work toward the Bachelor of Arts in Biology have two degree tracks from which to choose; a cell and molecular track and an ecology, evolution, and conservation biology track. The cell and molecular track is designed for students interested in cell and molecular biology as a career as well for students intending to attend medical, dental, or veterinary school. The ecology, evolution, and conservation biology track was created to take advantage of Big Island's unique natural environment. It is designed for students wishing to attend graduate school or seek employment in ecology, evolution, conservation biology or other related fields of natural resource planning and management or the ecotourism industry.

The Bachelor of Science in Biology is a degree with a cell and molecular emphasis which also has additional chemistry and math requirements. While it was designed specifically for students interested in attending graduate school in the area of cell and molecular sciences, it also supports students who intend to pursue careers in medicine, dentistry, or veterinary medicine.

**Biology Major (B.A. Option)**

**Cell and Molecular Track Requirements: 38 semester hours in biology**

Biol 150-150L, 153-153L, 270-270L, 275-275L, 281, 380, 410-410L, 415, 466, 495A, 495B, and a minimum of one additional advanced laboratory course chosen from 415L or 466L, and a minimum of three units of biology elective as a lecture course, laboratory course, or directed research.

**Supplemental Requirements:**

General chemistry (Chem 124-124L, 125-125L), organic chemistry (Chem 241-241L, 242-242L); college physics (Phys 106-170L, 107-171L) or general physics (Phys 170-170L, 171-171L); and applied calculus (Math 115) or calculus (Math 205-205L).

The following is also recommended: (I) majors planning to pursue graduate studies in cell and molecular biology take both Biol 415L and 466L, Math 205-205L, 206-206L, courses in quantitative analysis and physical chemistry (Chem 330-330L and 350-350L or 351-351L), and at least two semesters of directed research (Biol 399 or 499); (II) majors planning to apply to medical/dental/veterinary school take human anatomy and physiology (Biol 243-243L and 244-244L) and participate in volunteer and shadowing experiences in the local medical/dental/veterinary community as appropriate.

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37 + 1 = 38

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**Ecology, Evolution and Conservation Biology Track Requirements: 38 semester hours in biology**

Biol 150-150L, 153-153L, 270-270L, 281-281L, 357-357L, 380, 443-443L, 481-481L, 495A, 495B, and a minimum of three units of biology elective as a lecture course, laboratory course, or directed research.

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**Supplemental Requirements:**

General chemistry (Chem 124-124L, 125-125L), organic chemistry (Chem 241-241L, 242-242L); college physics (Phys 106-170L, 107-171L) or general physics (Phys 170-170L, 171-171L); and applied calculus (Math 115) or calculus (Math 205-205L).

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**Minor: 21 semester hours in biology**

**Cell and Molecular Track:**

Required: Biol 150-150L, 153-153L, 270, 275-275L, 281 and three additional semester hours of biology in courses numbered above Biol 150. = 21

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**Ecology, Evolution and Conservation Biology Track:**

Required: Biol 125, 150-150L, 153-153L, 181, 281-281L, and 357. = 21

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No University of Hawaii at Hilo biology courses numbered below 125 are required for, or credited toward, the major or minor in Biology.

REASONS FOR REQUESTED MODIFICATION

For over twenty years, the biology department has offered a degree with a cell and molecular focus. This degree has been a solid foundation for the department and remains a viable avenue of study for students. The proposed program modification therefore retains a cell and molecular option. However, with the recent addition of new faculty, the biology department now has the capability of offering a degree track in ecology, evolution, and conservation biology. It is wholly appropriate that we do so.

Hawaii is the only state in the union with tropical rain forest habitat. It is also the world's premier location for study of evolutionary processes as indicated by the fact that more than 90% of Hawaii's native flora and fauna is endemic. Moreover, the Island of Hawaii is the most ideal in the Hawaiian chain for studies of ecology and evolutionary biology. Unfortunately, much of this unique habitat and many of the endemic species



are threatened. Education in the area of ecology, evolution, and conservation biology is badly needed if we, as a state, are to conserve these precious natural resources.

As an institution, we must take advantage of what we can teach that other institutions cannot as long as it makes academic sense and there is sufficient student interest. As outlined by President Mortimer in his State of the University address on September 11, 1998, the University wishes to expand programs ideally suited for Hawaii like marine science, astronomy, volcanology, *and ecology, evolutionary, and conservation biology.*

The Big Island is truly a natural ecological and evolutionary laboratory which we, as a department, have failed to utilize to its fullest. The proposed B.A. degree track in ecology, evolution, and conservation biology will rectify this situation. This track will take advantage of UH Hilo's location on the Big Island. It should appeal to students interested in working in natural resource management or the expanding ecotourism industry, to those wishing to attend graduate school in ecology, evolution, or conservation biology, as well as those interested in teaching at the intermediate and high school level.

Biology is already one of the largest majors on the Hilo campus. We anticipate that the new ecology, evolution, and conservation biology track will substantially increase biology's major count which is in line with UHH's master plan to expand our enrollment.

#### Existing

The existing major in biology has a cell and molecular emphasis. Of the 38 required semester hours in biology, 20 semester hours are in courses dealing with aspects of cell and molecular biology (Biol 270, 275-275L, 410-410L, 415, 466, and 415L or 466L). With the exception of biology seminar, all senior-level course work contains a cell and molecular accent. The focus of the biology major curriculum reflects the current national trend toward emphasizing cell and molecular biology. The existing major is ideal for students interested in working in the growing private sector molecular biology industry or those interested in attending graduate school in the area of cell and molecular biology. It is also suited for students interested in professional schools like medical, dental, and veterinarian schools. The existing biology minor, which has a modest cell and molecular emphasis, appeals to students from a number of majors, but especially those enrolled in the Natural Sciences Major.

#### Proposed

The new biology B.A. program will afford students two tracks in the major from which to choose; a cell and molecular track (C&M) and an ecology, evolution, and

conservation biology track (EECB). There will also be two minors available: one with a C&M focus, the other emphasizing EECB.

The cell and molecular track is essentially the same as the existing major. One new course has been added (Biol 270L), and two semester hours of electives have been dropped. This track will continue to provide a track for students interested in cell and molecular biology as well as for students intending to attend medical, dental, and veterinarian school.

The ecology, evolution, and conservation biology track has been added to take advantage of UH Hilo's location on the Big Island, student interest in this curriculum, the local job market, and to support the University mission as recently outlined by President Mortimer in his State of the University message. This track includes twelve semester hours of newly created ecology, evolution, and conservation biology courses; five newly created laboratory courses (Biol 270L, 281L, 357L, 443L, 481L), and two newly created lecture classes (Biol 443 and 481). The EECB track will appeal to students interested in working in natural resource management and the expanding ecotourism industry, as well as those wishing to attend graduate school in ecology, evolution, or conservation biology.

The C&M and EECB minors afford students the opportunity to choose the emphasis of their minor.