

UNIVERSITY OF HAWAI'I
CODE REQUEST FORM FOR ACADEMIC PROGRAM CODES

PL=2.0
SP=N
RECD 1/13/15
F/UP 1/13/15
RESP 1/14/15

REQUESTOR CONTACT INFORMATION	
Date: 12 January 2015	Effective term of request (Semester-Year): fall 2015
Name: Louise Pagotto	Title: Vice Chancellor for Academic Affairs
Campus: Kapi'olani Community College	Office/Department: Academic Affairs
Phone: 808-734-9519	Email: pagotto@hawaii.edu

1. PROGRAM CODE, MAJOR CODE, CONCENTRATION CODE		Banner forms: SMAPRLE, SOACURR, STVMAJR
Institution: Kapiolani CC (KAP)	College: AR	Department: MS
<input checked="" type="checkbox"/> New program code <input type="checkbox"/> Change/replace existing program code: AS-NSCI-BIOT		
Level: <input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Graduate <input type="checkbox"/> First-Professional <input type="checkbox"/> Post-Baccalaureate <input type="checkbox"/> Other:		
Degree: Associate in Science	Certificate:	
If requesting an existing Major code and/or Concentration code in Banner:		
Existing Major:	Existing Concentration:	BIOT Biotechnology
<small>Code Description</small>	<small>Code Description</small>	
If requesting a new <input type="checkbox"/> Major code or <input type="checkbox"/> Concentration code that does not exist in Banner:		
New Code [4 char/space limit]:	Description [30 char/space limit]:	
If a similar major/concentration code exists in Banner, please list the code:		
Is this major/concentration code being used the same way at other UH campuses?		
Is 50% or greater of the classes in this program offered at a location other than the Home Campus? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <small>(Please consult your Financial Aid Officer on Program Participation Agreement impact)</small>		
Is this program/major/certificate financial aid eligible? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <small>(Financial Aid Officer consultation required for all new program codes)</small>		
Should this program be available for applicants to select as their planned course of study on the online application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <small>(If yes, students may select the code as their <u>only</u> program of study.)</small>		

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Replacing or eliminating an existing program code:

If replacing an existing program code, are current students "grandfathered" under the old code? Yes No

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

Will the old program code be available for:	Banner Module	Yes	No	Ending Term (Semester-Year)
Online Application		<input type="checkbox"/>	<input type="checkbox"/>	_____
Recruitment		<input type="checkbox"/>	<input type="checkbox"/>	_____
Admissions		<input type="checkbox"/>	<input type="checkbox"/>	_____
General Student		<input type="checkbox"/>	<input type="checkbox"/>	_____
Academic History		<input type="checkbox"/>	<input type="checkbox"/>	_____

2. CERTIFICATES ONLY

Does this certificate qualify as a Gainful Employment Program (Title IV-eligible certificate program)? Yes No
(Please consult your Financial Aid Officer or see: <http://www.ifap.ed.gov/GainfulEmploymentInfo/index.html>)

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

3. NEW CAMPUS, COLLEGE, DIVISION, OR DEPARTMENT CODE

Banner forms: STVCAMP, STVCOLL, STVDIVS, STVDEPT

Campus code [3 char]:	Campus description [30 char/space limit]:
College code [2 char]:	College description [30 char/space limit]:
Division code [4 char/space limit]:	Division description [30 char/space limit]:
Department code [4 char/space limit]:	Department description [30 char/space limit]:

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4. NEW COURSE SUBJECT CODE (Subject Alpha)		Banner form: STVSUBJ
College:	Department:	
Subject code [4 char/space limit]:	Subject description [30 char/space limit]:	

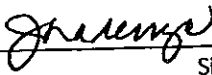

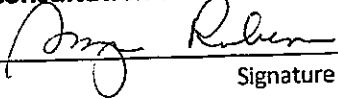
5. NEW MINOR (Minor codes are listed on the Major code table)		Banner form: STVMAJR
Minor Code [4 char/space limit]:	Minor Description [30 char/space limit]:	

Please briefly describe your request and explain why you are requesting the code(s):

A new concentration is being added to the AS in Natural Sciences - *Biotechnology and Biomolecular Laboratory Science* ^{sc}

SUPPORTING DOCUMENTATION
Please see the Code Request Guide for the required supporting documents to be submitted. Documents submitted with this form:
<input type="checkbox"/> Board of Regents meeting minutes and supporting documents provided to the BOR <input type="checkbox"/> Memo from UH President <input checked="" type="checkbox"/> Memo from Chancellor <input checked="" type="checkbox"/> Curriculum (required for requests for new programs/majors/minors/certificates) <input type="checkbox"/> Gainful Employment Program notification to the US Department of Education <input type="checkbox"/> Other: _____

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CAMPUS VERIFICATION		
Requestor Signature <u>Wendy P. Roth</u>		Date <u>12 January 2015</u>
Registrar (If different from Requestor)		
<u>Jerilynn I. Lorenzo</u> Registrar Print name	<u></u> Signature	<u>12 January 2015</u> Date
Email/memo in lieu of Registrar's signature may be attached		
Financial Aid Officer (Financial Aid Officer consultation required for all new program codes)		
<u>Jennifer Bradley</u> Print name	<u></u> Signature	<u>12 January 2015</u> Date
Email/memo in lieu of Financial Aid Officer's signature may be attached		
For Community Colleges, verification of consultation with OVPCC Academic Affairs:		
<u>Suzette Robinson</u> Print name	<u></u> Signature	<u>1/11/15</u> Date
Email/memo in lieu of signature may be attached		

Send completed form and supporting documentation to:

Institutional Research and Analysis Office (IRAO)
 1633 Bachman Place
 Sinclair Annex 2, Room 4
 Honolulu, HI 96822
 Email: iro-mail@lists.hawaii.edu
 Fax: 808-956-9870
 Phone: 808-956-7532

After all required forms and supporting documents have been submitted, please allow at least two weeks for processing by IRAO and Banner Central.

FOR INTERNAL USE ONLY	Date form/docs received:
Program code [12]:	Program Description [30]:
CIP code [6]:	CIP description [30]:

University of Hawai'i
KAPI'OLANI COMMUNITY COLLEGE
Instructional Services Office

MEMORANDUM

December 12, 2014

TO: Leon Richards
Chancellor

FROM: Louise Pagotto *LPagotto*
Vice Chancellor

SUBJECT: AY 2015 Curricular Proposal – Program Action Request – Fall 2015

Enclosed are the following curricular documents for your review:

ACTION PROGRAM

Addition Associate in Science in Natural Science with a Concentration in Biotechnology
and Biomolecular Laboratory Science

Approved / Not Approved

Richards 12/19/14

Leon Richards, Chancellor Date

LP:ao

Attachments

c: Susan Pope
Chad Yasuda

PAR ASNS 121214– Biotechnology and Biomolecular Lab Science – Fall 2015

KAPI'OLANI COMMUNITY COLLEGE
University of Hawai'i
PROGRAM ACTION REQUEST (Form: 1/07/07)

- 1a. **Type of Program Action:** Modification to the Associate in Science in Natural Science (ASNS)
 1b. If modification of an existing program, what kind of modification?
 • Addition of the "Biotechnology and Biomolecular Laboratory Science" concentration to the Associate in Science degree in Natural Science (ASNS).
 1c. If new program, attach a program proposal for the Board of Regents, attach a copy of the "permission to plan" documents.

2. **Program Type:** Associate in Science degree in Natural Science (ASNS)

3. **Program Name and Program Description:** Associate in Science in Natural Science with a concentration in Biotechnology and Biomolecular Laboratory Science

The Associate in Science degree in Natural Science at Kapi'olani Community College prepares students to transfer to four-year institutions. This 60 credit program provides clear, explicit, coherent pathways for students intending to transfer into Science, Technology, Engineering and Mathematics (STEM) majors at baccalaureate institutions. The program provides curricula that focus on basic science and mathematics as well as more advanced research and mentoring experiences. The degree provides students with undergraduate research opportunities as they move through STEM curricular pathways. Targeted advising and appropriate course sequencing enable efficient transfer of STEM students.

4. **Effective Term:** Fall / 2015


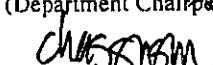
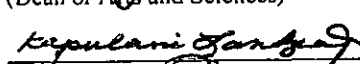
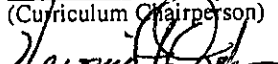

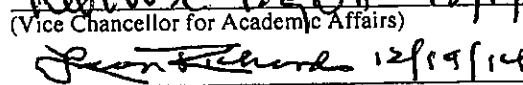
5. **Revise pages** 190 - 200 **in the** 2014-2015 **version of the KCC General Catalog.:**

6. **Is this program offered at another UH Campus?** (please choose one, omit other) **YES.**

If YES, specify campus, and program name. Leeward CC received approval in Fall 2011 for an AS in Natural Sciences, with concentrations in Physical Science, Life Science, and Engineering, based on KapCC's approved ASNS. UH Maui College has an approved AS in Natural Sciences, with concentrations in Physical Science, Life Science, also based on KapCC's ASNS. Windward CC has an ASNS degree with Life Science and Physical Science concentrations, also based on KapCC's ASNS. The KapCC AS degree in Natural Science was approved as an established program in 2011 by the BOR. It has been the fastest growing degree program at the College. It provides a clear and focused pathway for students intending to transfer into STEM fields at a four-year institution. Other Community Colleges in the UH system (WCC, HCC) have submitted a proposal to the BOR to offer the AS degree in Natural Science.


7. **Justification:**


The proposed addition is to establish a new "Biotechnology and Biomolecular Laboratory Science Concentration". This will provide a clear and focused pathway for students intending to pursue various molecular bioscience pathways at a four-year institution. The courses are already being offered at KCC.

Requested by:	Maria Bautista	Math & Sciences
	(Name)	(Department)
		10/8/14
		(Date)
		10/8/14
	Maria Bautista	(Date of Department Vote)
	(Department Chairperson)	
Approved by:		10/8/14
	(Dean of Arts and Sciences)	(Date)
		11/21/14
	(Curriculum Chairperson)	(Date)
		12/1/14
	(Faculty Senate Chairperson)	(Date)
		12/1/14
	(Vice Chancellor for Academic Affairs)	(Date)
		12/19/14
	(Chancellor)	(Date)

Kapi'olani Community College
Action Request Memorandum
Sept. 26, 2014

TO: Leon Richards, Chancellor, Kapi'olani Community College

VIA: Veronica Ogata, Faculty Senate Chairperson
Charles Sasaki, Dean of Arts and Sciences 

FROM: Maria Bautista, Math & Sciences Department Chair 

SUBJECT: Addition of a 60 credit concentration in Biotechnology and Biomolecular Laboratory Science to the Associate in Science degree in Natural Science (ASNS) at Kapi'olani Community College

1. SPECIFIC ACTION REQUESTED

Approval is requested for the following:
Create a new 60 credit concentration (Biotechnology and Biomolecular Laboratory Science concentration) in the Associate in Science degree in Natural Science.

Program Description: Associate in Science in Natural Science (AS NS)

The Associate in Science degree in Natural Science at Kapi'olani Community College prepares students to transfer to four-year institutions. This 60 credit program provides clear, explicit, coherent pathways for students intending to transfer into Science, Technology, Engineering and Mathematics (STEM) majors at baccalaureate institutions. The program provides curricula that focus on basic science and mathematics as well as more advanced research and mentoring experiences. The degree provides students with undergraduate research opportunities as they move through STEM curricular pathways. Targeted advising and appropriate course sequencing enable efficient transfer of STEM students.

Program Student Learning Outcomes:

Upon successful completion of the Associate in Science degree in Natural Science, the student should be able to:

- Apply scientific knowledge, skills, and methods to problem solving, with a special emphasis on Hawai'i, where appropriate.
- Utilize analytical reasoning or mathematical techniques to describe physical or biological phenomena.
- Conduct inquiry-based investigations using computer algorithms, engineering design reviews, and/or the scientific process.
- Critically review discipline-specific literature and effectively communicate unbiased research orally and in writing.

Learning Outcomes for concentration in Biotechnology and Biomolecular Laboratory Science:

Upon successful completion of the Associate in Science degree in Natural Science with a concentration in Biotechnology and Biomolecular Laboratory Science, the student should be able to:

- **Perform highly technical procedures** such as cell counting, DNA extraction and characterization, cloning, PCR, ELISA and other immunological techniques, maintenance of cell lines, protein expression, isolation and purification.
- **Conduct research experiments** following operation and safety protocols and applying knowledge of theory and techniques sufficient to troubleshoot appropriately.
- **Analyze and display laboratory data and bioinformatics data** using computer technology.
- **Manage laboratory activities**, including record keeping, ordering supplies and preparing reports.
- **Apply successful problem solving skills** in performing laboratory work and in working with biological and chemical hazards.

<i>Proposed ASNS with a concentration in Biotechnology and Biomolecular Laboratory Science. Curriculum to become effective Fall 2015.</i>						
ASSOCIATE IN SCIENCE CURRICULUM, NATURAL SCIENCE WITH A CONCENTRATION IN BIOTECHNOLOGY AND BIOMOLECULAR LABORATORY SCIENCE (60 CREDITS)		* = Suggested Semester				
Course	Title	Credits	1	2	3	4
General Education Requirements (19 credits)						
ENG 100 or ESL 100	Composition I Composition I	3	*			
MATH 205	Calculus I	4	*			
KCC AA/FG	AA Global and Multicultural Perspectives Electives (Two courses, each course from a different group: FGA, FGB, or FGC)	6		*	*	
KCC AA/ DA, AA/DL, AA/DH	AA Arts and Humanities Diversification: One course from DA, DL, DH	3		*		
KCC AA/ DS	AA Social Sciences Diversification: One course from DS	3			*	
Chemistry Courses (13 credits)						
CHEM 161	General Chemistry I	3	*			
CHEM 161 L	General Chemistry I Lab	1	*			

CHEM 162	General Chemistry II	3		*		
CHEM 162L	General Chemistry II Lab	1		*		
CHEM 272	Organic Chemistry I	3			*	
CHEM 272L	Organic Chemistry I Lab	2			*	
Biotechnology and Biomolecular Laboratory Science Concentration (24 credits)						
BIOL 171	General Biology I	3		*		
BIOL 171L	General Biology I Lab	1		*		
BIOL 172	General Biology II	3			*	
BIOL 172L	General Biology II Lab	1			*	
BIOL 275	Cell and Molecular Biology	3				*
BIOL 275L or MICR 240	Cell and Molecular Biology Lab Tissue Culture	2				*
MICR 130	General Microbiology	3	*			
MICR 140	General Microbiology Lab	2	*			
MICR 161	Immunology and Protein Chemistry	2			*	
MICR 230	Molecular Biology	3				*
SCI 295-MI	STEM Research in Microbiology	1				*
Electives (4 credits) ** indicates strongly recommended for this concentration						
ASTR 110	Survey of Astronomy	3				
BIOC 141	Fundamentals of Biochemistry	3				
BIOC 244	Essentials of Biochemistry	3				
BIOL 265	Ecology and Evolutionary Biology	3				
BIOL 265 L	Ecology and Evolutionary Biology Lab	1				
BOT 201	Plant Evolutionary Diversity	3				
BOT 201 L	Plant Evolutionary Diversity Lab	1				
CHEM 273	Organic Chemistry II	3				
CHEM 273L	Organic Chemistry II Lab	1				
GG 101 L	Introduction to Geology Lab	1				
GG 103	Geology of the Hawaiian Islands	3				

ICS 111	Introduction to Computer Science I	3				
ICS 141	Discrete Mathematics for Computer Science I	3				
ICS 211	Introduction to Computer Science II	3				
ICS 212	Program Structure	3				
ICS 241	Discrete Mathematics for Computer Science II	3				
MATH 100	Survey of Mathematics	3				
MATH 206	Calculus II	4				
MATH 206 L	Calculus II Lab	1				
OCN 201	Science of the Sea	3				
PHYS 151**	College Physics I	3				
PHYS 151 L**	College Physics I Lab	1				
PHYS 152	College Physics II	3				
PHYS 152 L	College Physics II Lab	1				
PHYS 170**	General Physics I	4				
PHYS 170 L**	General Physics I Lab	1				
PHYS 272	General Physics II	3				
PHYS 272L	General Physics II Lab	1				
PHYS 274	General Physics III	3				
PHYL 160	The Science of Sleep	3				
SCI 295-ALPHA**	STEM Research	1-3				
ZOOL 141	Human Anatomy and Physiology I	3				
ZOOL 141 L	Human Anatomy and Physiology I Lab	1				
ZOOL 142	Human Anatomy and Physiology II	3				
ZOOL 142 L	Human Anatomy and Physiology II Lab	1				
ZOOL 200	Marine Biology	3				
ZOOL 200 L	Marine Biology Lab	1				
TOTAL CREDITS		60				

The issuance of an AS degree requires that the student must earn a cumulative grade point ratio (GPR) of 2.0 or higher for all courses applicable toward the degree.

2. RECOMMENDED EFFECTIVE DATE: Fall 2015

3. PURPOSE:

The purpose of this new concentration in Biotechnology and Biomolecular Laboratory Science is to create an Associate of Science, transferable degree program for students intending to pursue baccalaureate studies in cellular and molecular biology and biotechnology. This program stresses the laboratory and research aspects of these disciplines.

4. SPECIFIED ISSUES:

The Kapi'olani Community College AS degree in Natural Science has a Life Science concentration, a Physical Science concentration, a pre-Engineering concentration, and a pre-ICS concentration. The current emphasis of the Life Science concentration is in general biology and it is broadly suited for students interested in any of the many life science disciplines such as ecology, evolutionary biology, anatomy, physiology, pre-med, cell biology or microbiology, to name a few. These disciplines can be quite different and students often need to make key decisions about which courses to take early in their academic careers if they hope to graduate in a timely manner in a particular discipline. This new concentration in Biotechnology and Biomolecular Laboratory Science hopes to capture that subset of life sciences majors who are interested in the cellular and molecular life science disciplines; these are disciplines that also have very strong laboratory research components. The required courses in this concentration will provide students with requisite conceptual and laboratory experience to succeed in baccalaureate degree programs in cellular and molecular biology and biotechnology. For example, these students would transfer seamlessly into the following UH-Manoa BS degree programs: Biology, Microbiology, Molecular and Cellular Biology, and Molecular Biosciences and Bioengineering. These early and immediate opportunities in both coursework and research on topical issues utilizing modern methodologies will provide matriculating students with the foundation required to succeed in these later degree pathways, as well as promote continuation to graduate programs such as those conferring Master and Doctorate degrees.

5. BACKGROUND AND CONSEQUENCES:

The Associate in Science in Natural Science prepares students to transfer to four-year institutions. As currently configured, the AS degree in Natural Science offers a Life Science concentration, a Physical Science concentration, a pre-Engineering concentration, and a pre-ICS concentration. Within the Life Science concentration, a significant number of students report being interested in pursuing a bachelors degree in biotechnology and molecular biology and some of them have completed the non-transferable Biotechnician Certificate of Achievement as a way to land entry-level employment as biotechnicians. However, no clear pathway exists for students who want to pursue a baccalaureate degree in the molecular biosciences. The establishment of this new concentration would establish such a clear and focused pathway.

As indicated by consistent grant funding, numerous student research presentations, and student research awards received both locally and nationally, the Biotechnician Certificate of Achievement Program and the INBRE sponsored monoclonal antibody molecular and biomedical undergraduate student research program at KCC is successful. It is time to tie these successes to a strong, transfer-level Associate Degree program. This Associate Degree in Natural Science concentration in Biotechnology and Biomolecular Laboratory Science will provide students with the essential conceptual and laboratory experience needed for transfer to UH-Manoa Baccalaureate Degree Programs in the biomolecular sciences.