

Program Change Request

New Program Proposal

Date Submitted: 11/20/18 3:06 pm

Viewing: **BS-USSC-BIN* : University Studies - BS, Bioinformatics Concentration**

Last edit: 11/26/18 2:15 pm

Changes proposed by: Imacri

In Workflow

1. CLSC Department Head UG
2. Curricular Services Review
3. SC Committee Preparer UG
4. SC Committee Chair UG
5. SC College Dean UG
6. UCC Preparer
7. UCC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. External Approval
13. Curricular Services

Approval Path

1. 11/20/18 3:06 pm
Lucas Macri (Imacri):
Approved for CLSC
Department Head UG
2. 11/21/18 8:33 am
Angel Mario Carrizales
(carri1214): Approved
for Curricular Services
Review
3. 11/21/18 8:38 am
Sara Thigpin
(sarathigpin): Approved
for SC Committee
Preparer UG
4. 11/21/18 8:39 am
Lucas Macri (Imacri):
Approved for SC
Committee Chair UG
5. 11/21/18 8:39 am
Lucas Macri (Imacri):
Approved for SC College
Dean UG
6. 11/21/18 10:44 am
Sandra Williams
(sandra-williams):
Approved for UCC
Preparer
7. 12/10/18 10:28 am
Terra Bissett (t.bissett):
Approved for UCC Chair

Contact(s)

Name	E-mail	Phone
Lucas Macri	Imacri@tamu.edu	979-845-7362

Academic level	Undergraduate
Effective Term	2019-2020
Department	College of Science
College	Science
Program type	Degree w/Concentration
Degree designation	BS - Bachelor of Science
With a major in	University Studies - USSC (USSC)
Associated Program	Not Applicable
With a concentration in	Bioinformatics - USSC (BIN*)
Catalog Program Title	University Studies - BS, Bioinformatics Concentration
CIP and Fund code	2611030002

Rationale for Proposal

To provide a University Studies in Science track that provides career opportunities in Bio-Informatics (all existing USSC tracks are oriented towards Math or Secondary Education)

Program hours 120

Is this program eligible for financial aid? Yes

Program delivery mode
On-campus

Has program funding been finalized at the department or college level? Yes

Will new costs for the first five years of the program be under \$2 million? Yes

Catalog Program Requirements

Course List

Code	Title	Semester Credit Hours
BIOL 213	Molecular Cell Biology	3

Code	Title	Semester Credit Hours
BIOL 350	Computational Genomics	3
BIOL 430	Biological Imaging	4
BIOL 451	Bioinformatics	3
BIOL 491	Research	2
CSCE 110	Programming I	4
or CSCE 111	or Introduction to Computer Science Concepts and Programming	
STAT 312	Statistics for Biology	3
University and College Requirements		
BIOL 111	Introductory Biology I	4
BIOL 112	Introductory Biology II	4
CHEM 119	Fundamentals of Chemistry I	4
CHEM 120	Fundamentals of Chemistry II	4
POLS 206	American National Government	3
POLS 207	State and Local Government	3
STAT 201	Elementary Statistical Inference	3
Select one of the following:		4
MATH 147	Calculus I for Biological Sciences	
MATH 151	Engineering Mathematics I	
MATH 171	Analytic Geometry and Calculus	
American history		6
Communication		6
Creative arts		3
Language, philosophy and culture 1		3
Social and behavioral sciences		3
Minor 1		15-18
Minor 2		15-18
General electives 2		12-18
Total Semester Credit Hours		120

1Select 3 hours from any 200-499 level course.

2Three hours of courses must be in the area of international and cultural diversity and three hours of courses must be in the area of cultural discourse. These may be in addition to University Core Curriculum courses, or if a course in this category satisfies an area of the Core, it can be used to meet both requirements. Remaining electives may be selected from any 100-499 course not used elsewhere.

Additional information	Letter of support for the one required course outside of the College of Science (CSCE 110/111) has been requested.
Required Proposal Forms	ussc_bioi.pdf ussc_bioi_statement.pdf ussc_bin_csce_support_letter.pdf ussc_bin_eval.docx
Reviewer Comments	Angel Mario Carrizales (carri1214) (11/20/18 4:47 pm): Edits made to conform to catalog style guidelines. Terra Bissett (t.bissett) (12/10/18 10:27 am): UCC approved December 2018.

Sandra Williams

From: Lucas Macri <lmacri@tamu.edu>
Sent: Monday, November 26, 2018 2:01 PM
To: Sandra Williams; Carrizales, Angel M
Subject: Letter of support for USSC-BIN

Hi Sandra & Angel,

I hope you had a great Thanksgiving Break. Please see below for a letter of support from the Department of Computer Science & Engineering regarding our inclusion of CSCE110/111 among the core requirements for the USSC-BIN degree.

Cheers,

--Lucas

----- Forwarded Message -----

On Nov 21, 2018 9:16 AM, "Schaefer, Scott D" <schaefer@cs.tamu.edu> wrote:
Mark,

The Computer Science and Engineering Department is pleased to see that the College of Science recognizes Computer Science as a core part of this Science degree. We are happy to lend our support to the inclusion of csce 110/111 in the degree with the understanding that the number of students is expected to be about 10/year. If numbers begin to deviate significantly from these estimates, we expect the College of Science to discuss these changes and the impact they would have with our department.

Scott Schaefer
Associate Department Head
Department of Computer Science & Engineering
Texas A&M University

Degree Evaluation

University Studies in Science – Bioinformatics Concentration Undergraduate Required Areas: 120 hours

Concentration Coursework: 22 hrs

- A. BIOL 213 3hrs
- B. BIOL 350 3hrs
- C. BIOL 430 4hrs
- D. BIOL 451 3hrs
- E. BIOL 491 (2 CRs)
- F. CSCE 110 or CSCE 111 4hrs
- G. STAT 312 3hrs

Communication: 6hrs

Mathematics: 7hrs

- A. MATH147 or MATH151 or MATH171
- B. STAT 201

Life and Physical Sciences: 16 hrs

- A. BIOL 111 4hrs
- B. BIOL 112 4hrs
- C. CHEM 119 4hrs
- D. CHEM 120 4 hrs

Language, Philosophy and Culture: 3hrs

200-499 LPC course

Creative Arts: 3hrs

Social and Behavioral Science: 3hrs

Citizenship: 12hrs

This is a university area and will be added automatically

General Elective: 48 hours

Includes 30-36 hours of courses that are used to satisfy the two minor requirements and 12-18 hours of 100-499 courses not used elsewhere.

Work Not Applied: This is a university area and will be added automatically

University Writing Req.: 2 courses min. (List the departments approved writing or communication courses – or you may use the university approved: Must have two courses with the UWRT or UCRT attributed)

Int'l&Cult Div/Cult Discourse: This is a university area and will be added automatically

Foreign Language: For programs that do not require a foreign language area this is the university approved foreign language area

Residence Requirement – 36hrs of 300-400 level coursework must be completed at TAMU. 12 hrs must be in major field.: List the range for the 12hr major field of study (example: COMM 300-499)

BIOL300-499

STAT300-499

GPR – Major: Specific courses required: Provide a list or range of courses for this area: (example – MUSC 100-499; ARTS 149; ENGL 227)

BIOL100-499

STAT100-499

**Texas A&M University
University Studies Degree
Proposed Area of Concentration**

Name of Area of Concentration: Bioinformatics

Department: College of Science

College: Science

Office responsible for advising students in this Area of Concentration:

a. Office Name/Location: Student Affairs, Blocker 514

b. Telephone Number: (979) 845-7362

c. Email: sara@science.tamu.edu

The University Studies degree is an innovative interdisciplinary degree with an area of concentration and two minors, at least one of which is in a different college from that of the area of concentration. The degree serves two main groups of students: first, students who are in good academic standing (GPA of 2.0 or above) but who are unable to find or gain access to a major of interest and (b) students who specifically seek a broad interdisciplinary combination of coursework that is unavailable through existing degree programs.


The educational objective of the University Studies Degree is to provide students with an interdisciplinary academic degree that will prepare them for a successful life and career or for graduate school.

Please append two items to this sheet:

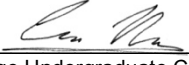
1. A statement that: A) describes the area of concentration and distinguishes it from existing majors, B) explains how this area of concentration would serve at least one of the two main groups of students cited above, and C) indicates how this area of concentration would promote the purposes of the university studies degree as described above. In the case of a College submission, please indicate support from the faculty.

2. The enclosed form for listing courses that will be used in the area of concentration that will be required as prerequisites, and will be used for university core curriculum requirements.

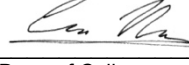
Reviewed and approved by:



Department Head/Program Director 11/19/18
Date



College Undergraduate Curriculum Committee 11/19/18
or UCC representative Date



AOC Dean of College 11/19/18
Date

For Interdisciplinary Degrees Only:

Department Head/Program Director Date

College Undergraduate Curriculum Committee Date
or UCC representative

AOC Dean of College Date

COURSE FORM

There needs to be a minimum of 6 hours at 400-level and 36 hours of 300-400 level coursework in residence at Texas A&M University.

A. Select 22 hours from among the following courses for the area of concentration.

1. The following 15 hours of course work are required*

Course Prefix & Number	Course Title	Credit Hours
BIOL213	Molecular Cell Biology	3
BIOL350	Computational Genomics	3
BIOL430	Biological Imaging	4
BIOL451	Bioinformatics	3
BIOL491	Research	2

2. Select 7 hours from the following courses; 4 hours from Table A and 3 hours from Table B:

Table A

Course Prefix & Number	Course Title	Credit Hours
CSCE 110, or CSCE 111	Programming I, or Introduction to Computer Science Concepts & Program.	4

Table B

Course Prefix & Number	Course Title	Credit Hours
STAT 301, or STAT 302, or STAT 303	Introduction to Biometry Statistical Methods Statistical Methods	3

3. Prerequisite courses not included in the University Core Curriculum or listed above: The students will use BIOL 111 (4 CR), CHEM 119 (4 CR) and CHEM 120 (1 CR) to satisfy the Life and Physical Sciences Core requirement. They will need an 7 additional CRs in Science prerequisites, listed below:

Course Prefix & Number	Course Title	Credit Hours
BIOL112	Introductory Biology II	4
CHEM120	Fundamentals of Chemistry II	3

B. Student will select two minors (30-36 hours). One must be from outside the college offering the area of concentration.

C. Free electives (17-26 hours). The students may have up to 18 hours of free electives, depending on their choice of minors.

D. Specify courses in the University Core Curriculum ^{1,2,3} that will be required for this area of concentration (43 hours). Please maintain as much flexibility as possible.

Area	Course Prefix & No.	Course Title	Credit Hours
Communication			
English 104	ENGL 104		
Mathematics	MATH 147 or MATH 151 or MATH 171 and STAT 201	Calculus I for Biological Sciences, or Engineering Mathematics I, or Analytic Geometry and Calculus, and Elementary Statistical Inference	7
Natural Sciences	BIOL 111 CHEM 119	Introductory Biology I Fundamentals of Chemistry I	9
Humanities			
Visual & Performing Arts			
Social & Behavioral Sciences			
History			
Political Science	POLS 206 & 207		
International & Cultural Diversity			
Kinesiology	KINE 198 & 199		

Description of Area of Concentration

The degree of University Studies in Science with concentration in Bioinformatics aims to provide a solid foundation in certain areas of Biology (without requiring Organic Chemistry and other advanced courses that are part of that major) along with a foundation in Informatics (represented by initial courses in Statistics and Computer Science).

Students served by this Area of Concentration

This area of concentration would serve students in good standing who may have initially pursued a Life Sciences degree, but later decided to focus on the interface between the aforementioned disciplines.

Educational Objective

Graduates of this program could find employment in biotech/biomedical companies or research institutes, or could pursue advanced degrees in this area.

Faculty support

This initiative is supported by 10 tenured/tenure-track faculty members across all Departments in the College of Science who served in the Dean's Committee on Interdisciplinary Science Degree Programs. It has also received support from Department Heads and the Interim Dean of Science.