

**COURSE APPROVAL FORM, Graduate School
University of Arkansas for Medical Sciences**

This form and attached materials are due in the Graduate School Office on the first Monday of the month. All forms will be submitted to the UAMS Graduate Council Curriculum Committee for review and approval prior to consideration by the Graduate Council.

This form is not required for minor stylistic or editorial corrections to the title or course descriptions. These may be made when revising the catalog copy.

1. **Program:** Department of Biomedical Informatics

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Department *Alpha (Department) Code*

2. **Action proposed** (indicate one or more items): Effective term: Fall 2018

- Add course
- Eliminate course (No outline needed)
- Change title
- Change credit hours from: _____ to _____
- Change course number from: _____ to _____
- _____ Change description

3. **Course ID, title and description:**

B	M	I	G	5	1	0	1
prefix				number			

Sequences Information
title (20 characters)

Foundations of BMI: Sequences Biological Info
catalog name (40 characters)

Scheduled offering: Fall Spring Summer On demand

To cross list a course, use the Course Cross Listing Form.

Describe the course in sentence form using 50 words or less as it is to appear in the catalog. List prerequisites, co-requisites and possible off-site instructional opportunities or requirements.

This course introduces the molecular foundations of biomedical informatics, from the perspective of Translational Bioinformatics. "Translational Bioinformatics" in this context means translating or moving the discoveries and innovations in the laboratory to the bedside; that is, applying bioinformatics to healthcare. The idea is to use molecular and clinical data resources to allow consideration of individual variations, and not simply population averages. One application of this can be in the area of 'personalized medicine', or 'precision medicine'.

4. **Justification:**

Justify this change in terms of course needs or curriculum improvement. State the effect of this change on any degree programs. Identify the courses to be eliminated, if any, if this course is approved. (Course Approval Forms must also be submitted for these courses) Identify any existing course or courses that would extensively overlap or be duplicated if the proposed curricular change occurs. Provide statements of concurrence with the change from the chairperson(s) and dean(s) of the programs/areas offering the affected courses.

"Translational Bioinformatics" in this context means translating or moving the discoveries and innovations in the laboratory to the bedside; that is, applying bioinformatics to healthcare. The idea is to use molecular and clinical data resources to allow consideration of individual variations, and not simply population averages. One application of this can be in the area of 'personalized medicine', or 'precision medicine'. Topics covered include medical genetics, genomic epidemiology, pharmacogenomics, human microbiomes, cancer genomics, coding and non-coding RNAs, and diseases of protein malfunction: all of which support the higher level courses already in our curriculum.

INSTRUCTIONS FOR COMPLETION OF THE UAMS GRADUATE SCHOOL COURSE APPROVAL FORM

1. Please save this PDF to your computer for editing.
2. The form has been designed with fields for your responses, and these are indicated in blue and gray shading. Please complete all fields. Use the “tab” key to move between fields. A ‘beep’ will sound if you attempt to enter a response that contains more characters than is permitted. **IF YOU NEED HELP IN ANY OF THE FIELDS, PRESS THE F1 KEY AND A HELP WINDOW WILL OPEN.**
3. Print the document, and then obtain the appropriate signatures before submitting the form to the Graduate Office.

SYLLABUS

COURSE NUMBER: BIOM 5101

COURSE TITLE: Foundations of Biomedical Informatics: Sequences as Biological Information

COURSE DESCRIPTION:

This graduate course is the first of a three-course introduction to the discipline of biomedical informatics. This course introduces the molecular foundations of biomedical informatics, from the perspective of Translational Bioinformatics. 'Bioinformatics' is the study of how to represent, store, search, retrieve and analyze biological information; much of that information is sequenced-based, including genomic DNA sequences, transcribed RNA sequences, and translated protein sequences. "Translational Bioinformatics" in this context means translating or moving the discoveries and innovations in the laboratory to the bedside; that is, applying bioinformatics to healthcare. The idea is to use molecular and clinical data resources to allow consideration of individual variations, and not simply population averages. One application of this can be in the area of 'personalized medicine', or 'precision medicine'. Topics covered include medical genetics, genomic epidemiology, pharmacogenomics, human microbiomes, cancer genomics, coding and non-coding RNAs, and diseases of protein malfunction.

PRE-REQUISITES: none

GENERAL INFORMATION:

CREDITS: 2 credit hours

SEMESTER: Fall 2018

LOCATION: Campus and Online (hybrid)

FACULTY: David Ussery, PhD

SPECIAL ASSISTANCE: Students who believe they may need accommodations in this class based on mental or physical impairments must contact the Students with a disability that need accommodations should contact the Associate Dean for Academic Affairs at (501) 686-5730 to schedule an appointment to discuss your needs. Please make arrangements as soon as possible so accommodations can be made in a timely manner.

COURSE OBJECTIVES:

Upon successful completion of this course, the student is able to:

Course Approval Form

- Describe the various sources and types of data used in translational bioinformatics
- Articulate the scope and definition of bioinformatics and translational bioinformatics
- Apply cross-cutting principles, theories or methods to addressing major challenges in medical genetics, genomic epidemiology, pharmacogenomics, human microbiomes, cancer genomics, coding and non-coding RNAs, and diseases of protein malfunction.

EVALUATION:

This is a graded course. Grades will be assigned separately for the didactic and lab portion of the course based on the course average according to the following scale: A (93-100), B (85-92), C(75-84), D(65-74), Fail (lower than 64).

The course average for the didactic portion of the course will be comprised of course assignments, weekly quizzes, the course project, and the final exam. The didactic portion of the course represents three of the four credit hours.

Assignments.....	10%
Weekly quizzes.....	20%
Course project.....	20%
Final exam.....	25%
Lab	25%

The grades for the assignment, weekly quiz, and lab portions of the course will be averaged and evenly weighted. The lab portion of the course represents one of the four credit hours, thus, one fourth of the course grade.

ACADEMIC HONESTY:

Academic honesty is expected at all times. All graded work must be your own unless otherwise specified in the assignment. Fair credit must be given to others for their work on team assignments by including a statement of contributorship (see ICMJE guidelines for authorship).

Academic dishonesty such as but not limited to cheating, plagiarism, using the work of others without permission and acknowledgement and forgery will result in an automatic zero for the assignment and may result in a failing grade in the course, loss of graduate funding and dismissal from your degree program.

5. Program Approvals:

Fred Prior, PhD, Department of Biomedical Informatics
(Print or type) Chairperson, Academic Department or Area

Fred Prior 04/30/2018
(Signature) Chairperson, Academic Department or Area Date

Robert E. McGehee 5-17-2018
College Dean (Dean McGehee for College of Medicine) Date

6. Graduate School Approvals

M. Mairi 5/17/18
Chairperson, Graduate Council Date

Robert E. McGehee 5-17-2018
Dean of the Graduate School Date



**University of Arkansas for Medical Sciences
Office of the University Registrar
GUS Course Catalog Form**

This form should be used for courses offered at UAMS. If a course addition will change the curriculum for one or multiple degree plans, you will be asked to update a curriculum template for each degree program affected. Please remember to submit a copy of the syllabus with this form.

Course Changes and Additions Submission Timeline

Fall Semester	February 1 st (same calendar year)
Spring Semester	September 1 st (preceding calendar year)
Summer Semester	December 1 st (preceding calendar year)

This request is for a: New Course Course Change Course Retirement (skip to p. 4)

College: Graduate School

Department/Program: Biomedical Informatics

Course Title: Foundations of BMI: Sequences as Biological Information

Course Description: This course introduces the molecular foundations of biomedical informatics, from the perspective of Translational Bioinformatics. 'Bioinformatics' is the study of how to represent, store, search, retrieve and analyze biological information; much of that information is sequenced-based, including genomic DNA sequences, transcribed RNA sequences, and translated protein sequences. "Translational Bioinformatics" in this context means translating or moving the discoveries and innovations in the laboratory to the bedside; that is, applying bioinformatics to healthcare. The idea is to use molecular and clinical data resources to allow consideration of individual variations, and not simply population averages. One application of this can be in the area of 'personalized medicine', or 'precision medicine'. Topics covered include medical genetics, genomic epidemiology, pharmacogenomics, human microbiomes, cancer genomics, coding and non-coding RNAs, and diseases of protein malfunction.

Course Instructor: David Ussery, PhD

Course Instructor Email: dussery@uams.edu Course Instructor Phone: (501) 603-1766

Additional Instructors: [Click here to enter additional instructor names and email addresses](#)

[Click here to enter additional instructor names and email addresses](#)

[Click here to enter additional instructor names and email addresses](#)

GENERAL COURSE INFORMATION

First term course will be offered/changed: Fall Spring Summer

First year course will be offered/changed: Fall 2018

Meeting dates differ from standard semester? Yes No

If yes, describe meeting pattern: (i.e. last 4 weeks of semester, 8 Wednesdays beginning 2nd week, etc.)

Grading Basis: Letter Grade Number of Units: 2

If Variable Credit, list the maximum number of units: *Choose an item.*

Component Type: *Lecture*

Repeat for credit? Yes No

If yes, limit to number of enrollments allowed per student: [Click here to enter max enrollments.](#)

Preferred Catalog Number: BMIG 5101

*Note: Preferred Catalog Numbers are not guaranteed to be used.

ENROLLMENT CONTROLS

PREREQUISITES

Subject Area	Catalog #	Course Title	Course ID (if known)
			<i>Course ID</i>
			<i>Course ID</i>
			<i>Course ID</i>
			<i>Course ID</i>

CO-REQUISITES

Subject Area	Catalog #	Course Title	Course ID (if known)
<i>Subj. Area</i>	<i>Catalog #</i>	<i>Course Title</i>	<i>Course ID</i>
<i>Subj. Area</i>	<i>Catalog #</i>	<i>Course Title</i>	<i>Course ID</i>
<i>Subj. Area</i>	<i>Catalog #</i>	<i>Course Title</i>	<i>Course ID</i>
<i>Subj. Area</i>	<i>Catalog #</i>	<i>Course Title</i>	<i>Course ID</i>

Please list any other non-course prerequisites attached to this course (e.g. minimum GPA, exam, year in program)
[Click here to enter text.](#)

Minimum Number of Students to Enroll: [Click to enter number](#)

Maximum Number of Students who may Enroll: [Click to enter number](#)

Is enrollment in this course limited to certain groups of students (i.e. PhD students only)? Yes No

Please describe enrollment limits by groups: [Click here to enter max enrollments.](#)

Is advisor or instructor consent required for students to take this course? No consent required

INSTRUCTION MODE

Please provide information about the first semester this course will be offered. You will have the opportunity to change this information if this form is provided prior to the last date for scheduling requests.

INSTRUCTION INFORMATION

Instruction Mode: *Online - 51-4% some face/face*

FOR ONLINE COURSES ONLY: Will this course be offered to students out of state? Yes No

Please select all locations where this course will be taught:

Main Campus

Northwest Campus

UAMS Southwest

Other

If "Other" Location, please describe: *Click here to enter text.*

EXAM AND PROGRESSION

Will the course have a final exam? Yes No

Will the final exam occur during the normally scheduled course time? Yes No

Is there a minimum grade required for the student to progress? Not Required

ADDITIONAL INFORMATION

Are any degrees affected by this course addition? Yes No

If "Yes," please list all degrees affected by this change: Certificate, MS, and PhD program in Biomedical Informatics

Does this course address/include:

Service Learning ¹ :	Partially <input type="checkbox"/>	100% <input type="checkbox"/>	Does not address <input type="checkbox"/>
Inter-professional Education ² (IPE)	Partially <input type="checkbox"/>	100% <input type="checkbox"/>	Does not address <input type="checkbox"/>
Cultural competency ³	Partially <input type="checkbox"/>	100% <input type="checkbox"/>	Does not address <input type="checkbox"/>
Patient-Family Centered Care ⁴	Partially <input type="checkbox"/>	100% <input type="checkbox"/>	Does not address <input type="checkbox"/>
Interdisciplinary Education ⁵	Partially <input type="checkbox"/>	100% <input checked="" type="checkbox"/>	Does not address <input type="checkbox"/>

¹ A structured learning experience that combines community service with preparation and reflection. Students engaged in service learning provide community service in response to community-identified concerns and learn: the context in which the service is provided, the connection between their service and their academic coursework, and their roles as citizens.

² Defined as students of two or more professions engaged in learning with, from and about each other.

³ An ability to interact effectively with people of different cultures and ethnic backgrounds. Comprises four components: Awareness of one's own cultural worldview, attitude towards cultural differences, knowledge of different cultural practices and worldviews, and cross-cultural skills. Developing cultural competence results in an ability to understand, communicate with, and effectively interact with people across cultures.

⁴ An approach to the planning, delivery, and evaluation of health care that is grounded in mutually beneficial partnerships among health care providers, patients, and families. It redefines the relationships in health care. The core concepts include: Dignity and respect, information sharing, participation, and collaboration.

⁵ Defined as the degree to which individuals have the capacity to obtain, process and understand basic health information and services need to make appropriate health decisions.

ADDITIONAL INFORMATION:

Click here to enter text.

COURSE RETIREMENT ONLY – Course Additions and Changes can skip to pg. 5

College: *Choose an item.*

Department/Program: *Click here to enter text.*

Course Title: *Click here to enter the current title.*

Catalog Name and Number: *Click here to enter text.*

Course ID (if known): *Click here to enter text.*

What semester and year will this course be retired? *Click here to enter text.*

Are any degrees affected by this course retirement? Yes No

If "Yes," please list all degrees affected by this change (updated Curriculum Templates for any degree that will change as a result of this retirement are required to be submitted to the Office of the University Registrar):

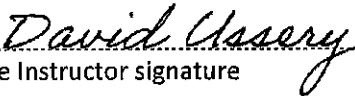
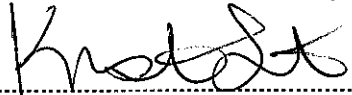
Click here to enter text.

ADDITIONAL INFORMATION:

Click here to enter text.

APPROVALS

Proposal will not be processed without all required signatures.

 ----- Course Instructor signature	David Ussery, PhD
 ----- Associate Dean signature	Kristen Sterba, PhD
Today's Date: April 26, 2018 Preparer's Email: tbwilliams@uams.edu	Preparer's Name: Tremaine Williams

Please submit this form and a copy of the syllabus to:

Angela Wilson, Registrar
Email: awilson5@uams.edu
Mail Slot #767
Questions? 501-526-6612

<p>Office use only</p> Received: _____ Entered into GUS <input type="checkbox"/> Entered into Schedule of Courses <input type="checkbox"/> Curriculum Registrar Initials: ____ Schedule Registrar Initials: ____	<p>Notes/Follow-up:</p>
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