

# Cover Sheet: Request 10643

**BME3053C**

## Info

Process	Course Modify Ugrad/Pro
Status	Pending
Submitter	Theus, Kristin undergrad@bme.ufl.edu
Created	12/23/2015 12:26:07 PM
Updated	2/5/2016 7:25:30 AM
Description	Computer programming lab/lecture to utilize Matlab to analyze biomedical measurements.

## Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Biomedical Engineering 021934001	van Oostrom, Hans		1/4/2016
No document changes					
College	Approved	ENG - College of Engineering	Caple, Elizabeth		1/21/2016
No document changes					
University Curriculum Committee	Comment	PV - University Curriculum Committee (UCC)	Case, Brandon	Added to the February agenda	1/22/2016
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			1/22/2016
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

# Course|Modify for request 10643

## Info

**Request:** BME3053C  
**Submitter:** Theus, Kristin undergrad@bme.ufl.edu  
**Created:** 12/23/2015 12:26:07 PM  
**Form version:** 1

## Responses

**Current Prefix:** BME  
**Course Level:** 3  
**Number :** 053  
**Lab Code :** L  
**Course Title :** Computer Applications for BME  
**Effective Term :** Earliest Available  
**Effective Year :** Earliest Available  
**Requested Action :** Other (selecting this option opens additional form fields below)  
**Change Course Prefix?:** No  
**Change Course Level?:** No  
**Change Course Number?:** No  
**Change Lab Code?:** Yes  
**Current Lab Code:** L  
**Proposed Lab Code:** C  
**Change Course Title?:** No  
**Change Transcript Title?:** No  
**Change Credit Hours?:** Yes  
**Current Credit Hours:** 1  
**Proposed Credit Hours:** 2  
**Change Variable Credit?:** No  
**Change S/U Only?:** No  
**Change Contact Type?:** No  
**Change Rotating Topic Designation?:** No  
**Change Repeatable Credit?:** No  
**Change Course Description?:** Yes  
**Current Course Description:** Computer programming lab to utilize Matlab to analyze biomedical measurements.  
**Proposed Course Description (50 words max):** Computer programming lab/lecture to utilize Matlab to analyze biomedical measurements.  
**Change Prerequisites?:** No  
**Change Co-requisites?:** No  
**Rationale:** We are adding 1 credit to computer applications in BME because our students need a lecture one period per week to learn more about the topics they will work on in lab. While the prerequisites prepare them for basic programming and math, they need more background on the biomedical applications. The 1 credit is available as part of a BME curricular revision.

## **BME 3053C: Computer Applications for BME**

1. **Description:** (2 credit hour) – Computer programming lab/lecture to utilize Matlab to analyze biomedical measurements.
2. **Pre-requisites and Co-requisites:** COP 2271 or equivalent and MAC 2312.
3. **Course Objectives:**
  - Develop a proficiency in the use of *computer programming* (specifically, Matlab) to analyze biomedical measurements.
  - Develop an understanding of *biomedical engineering problems* that require quantitative analysis and visualization.
4. **Contribution of course to meeting the professional component:** 2 credits of engineering topics (no design component)
5. **Relationship of course to program outcomes:**
  - (a) Ability to apply knowledge of math, science, engineering
  - (e) Ability to identify, formulate, solve engineering problems
  - (k) Ability to use techniques, skills and tools for engineering practice
6. **Instructor:** TBA
7. **Teaching Assistant:** TBA
8. **Meeting Times:**
9. **Class/laboratory schedule:** one 3hr Lab per week and one 50 minute lecture
10. **Meeting Location:**
11. **Material and Supply Fees:** None
12. **Textbooks and Software Required**
  - a. Title: Matlab for Engineering and the Life Sciences
  - b. Author: Tranquillo, Joseph
  - c. Publication date and edition: 2011, 1<sup>st</sup> edition
  - d. ISBN number: 9781608457113Required software: Matlab ([info.apps.ufl.edu](http://info.apps.ufl.edu))
13. **Recommended Reading:** none

#### 14. Course Outline

Topic	Week
Introduction and Matlab Programming Environment	1
Graphics	2
Vectors and vector space	3
Matrices, matrix operations/algebra	4
Matrix algebra	5
Scripts and functions	6
Loops and conditional logic	7
Data in, Data out, Data format	8
1D signals, Fourier analysis	9
Curve fitting	10
Data smoothing	11
2D image display, gray scale mapping	12
Image filtering/processing	13
BME Lab demonstration	14
Lab exam	15

#### 15. Attendance and Expectations: On time class attendance is expected.

##### Expectations:

- Be to class on time.
- no cell phone disruptions or e-device distractions.
- turn in homework on time and make legible
- better late than never
- ask for help if you need it

#### 16. Grading:

60% Homework; 25% Lab Exam, 15% Final Project

Homework is due at end of each class in class.

Lab exam will consist of a programming assignment to be completed during the exam period. Final project will be a group work.

#### 17. Grading Scale:

A = 94 – 100  
A- = 90 – 93.99  
B+ = 87 – 89.99  
B = 83 – 86.99  
B- = 80 – 82.99  
C+ = 77 – 79.99  
C = 73 – 76.99  
C- = 70 – 72.99  
D = 61 – 69.99

A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

18. **Make-up Exam Policy** – Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

19. **Honesty Policy** – UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures.

See <http://www.dso.ufl.edu/sccr/procedures/honorcode.php>

Unless otherwise stated, all homework for this class must be done individually. ***In this class it is a violation of the Academic Honesty code to obtain assistance on homework assignments from other individuals without acknowledging such.***

20. **Accommodation for Students with Disabilities** – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. **UF Counseling Services** – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
- Career Resource Center, Reitz Union, 392-1601, career and job search services.
- SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling
- Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling
- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling

22. **Software Use** – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.
23. Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.