BMI 546/BMI 646: Software Engineering
3.0 credit hours
Spring 2018
On campus: Wednesdays 9:00am-10:30am / BICC124
Revised 2/8/2018

PREREQUISITES: BMI 540/640 or BMI 565/665, or consent of instructor.

COURSE DESCRIPTION: This course covers the basic principles of software engineering geared towards providing students with a solid understanding of the process of producing quality software systems on time and on budget. The main activities in software process models are covered in detail, including: proposal creation, requirements gathering and specification, architecture design, software development methodologies, verification and testing, quality management and maintenance. Students will be expected to demonstrate their mastery of the material by the creation of written documentation for several of these main activities on a hypothetical software project of their choice, as well as by answering homework questions based on assigned reading, and passing written exams.

INSTRUCTOR: Aaron M. Cohen, M.D., M.S. office: 3030 Moody, Suite 160H, email:cohenaa@ohsu.edu, office phone: (503) 494-0046. Office hours by appointment, please email instructor.

REQUIRED TEXTBOOK(S): Software Engineering, 10th Edition, Sommerville, Addison-Wesley, 2015. ISBN 0133943038. Available on Amazon.com as an ebook as well as hardcover. This is the latest edition of the text book as was last updated in 2015. Used copies are also available on Amazon.

COURSE COORDINATION: This course will be taught in a “flipped classroom” style. Students are expected to come to class prepared. This includes reading the assigned weekly chapters and watching the videotaped lectures prior to the classroom session. During the classroom session the instructor will answer questions and lead a discussion on the assigned topics. On campus students are required to attend the live discussion sections. If there is a distance section, distance students will have an alternate discussion opportunity.

Weekly homework will be assigned to enable students to apply what they have learned. Homework will include both short answer and short essay questions.

Course handouts and homework assignments will be made available at the beginning of the week on Sakai. Homework will be assigned at the beginning of each week and due the following week before class on Wednesday. Completed homework assignments should be turned into the course Sakai site in MS Word DOCX format. Late homework will be accepted but may be penalized 10% per day late.

EVALUATION: Students will be evaluated based on homework, discussion participation, and midterm and final exams. The final grade will be weighted as follows: Midterm 25%, Final 25%, Homework 30%, Discussion Participation 10%, Final Project Presentation 10%.
Significant contribution to 80% of the weekly on campus or forum discussion sessions is required for full credit in discussion participation.

Final Project Presentation will be done in class and consist of short 5-10 minute slide talks from each student presenting their hypothetical software system overview, major requirements, high level architecture and the most interesting or novel aspects of the project in terms of: design, verification/validation, quality management, cost estimation, etc.

Time and location of the Midterm and Final examinations will be announced in class and via Sakai.

**GRADING SCALE:** Grading will be done on the standard OHSU A-F scale:
- A: 90-100%
- B: 80-89%
- C: 70-79%
- D: 60-69%
- F: Below 60%

Graduate Studies in the OHSU School of Medicine is committed to providing grades to students in a timely manner. Course instructors will provide students with information in writing at the beginning of each course that describes the grading policies and procedures including but not limited to evaluation criteria, expected time needed to grade individual student examinations and type of feedback they will provide.

Class grades are due to the Registrar by the Friday following the week of finals. However, on those occasions when a grade has not been submitted by the deadline, the following procedure shall be followed:

1) The Department¹/Program Coordinator² will immediately contact the Instructor requesting the missing grade, with a copy to the Program Director and Registrar.
2) If the grade is still overdue by the end of next week, the Department¹/Program Coordinator² will email the Department Chair directly, with a copy to the Instructor and Program Director requesting resolution of the missing grade.
3) If, after an additional week the grade is still outstanding, the student or Department¹/Program Coordinator² may petition the Office of Graduate students for final resolution.

¹ For courses that are run by a specific department.
² For the conjoined courses (course number is preceded by CON_ that are run by Graduate Studies.

**COPYRIGHT INFORMATION**
Every reasonable effort has been made to protect the copyright requirements of materials used in this course. Class participants are warned not to copy, audio, or videotape in violation of copyright laws. Journal articles will be kept on reserve at the library or online for student access. Copyright law does allow for making one personal copy of each article from the original article. This limit also applies to electronic sources.
To comply with the fair use doctrine of the US copyright law, Sakai course sites close three weeks after grades are posted with the Registrar. Please be sure to download all course material you wish to keep before this time as you will have no further access to your courses.

DMICE COMMUNICATION POLICY

1. If the syllabus directs the student to contact the TA before contacting the instructor, the student should do so. Otherwise, the student should contact the instructor and allow 2 business days (not including weekends) for a response.
2. If the student does not receive a response from the instructor within 2 business days, s/he should contact the TA (if there is one). When contacting the TA s/he should cc the instructor and Diane Doctor at doctord@ohsu.edu.
3. If a student does not receive a response from the TA within 1 business day (not including weekends), s/he should contact Diane Doctor at doctord@ohsu.edu and cc the instructor and the TA.
4. If Diane does not reply within 1 business day (not including weekends), the student should contact Andrea Ilg at ilgan@ohsu.edu.
5. Students having difficulties with Sakai should contact the Sakai Help Desk at sakai@ohsu.edu or at (877) 972-5249. Sakai help is available M-F from 8am to 10pm and weekends from Noon to 5pm. Do not contact the instructor.
6. Please use professional etiquette when communicating with peers and the instructor. This means avoiding aggressive or offensive language, showing respect for others’ opinions and positions, and conducting yourself as if you were face to face with them. Please pay special attention to etiquette in class forums and when using email. If you notice someone violating this policy, please make the instructor and TA aware of the problem.

COMMITMENT TO EQUITY AND INCLUSION

Oregon Health & Science University is committed to creating and fostering a learning and working environment based on open communication and mutual respect. If you encounter sexual harassment, sexual misconduct, sexual assault, or discrimination based on race, color, religion, age, national origin or ancestry, veteran or military status, sex, marital status, pregnancy or parenting status, sexual orientation, gender identity, disability or any other protected status please contact the Affirmative Action and Equal Opportunity Department at 503-494-5148 or aaeo@ohsu.edu. Inquiries about Title IX compliance or sex/gender discrimination and harassment may be directed to the OHSU Title IX Coordinator at 503-494-0258 or titleix@ohsu.edu

STUDENT ACCESS

OHSU is committed to providing equal access to qualified students with disabilities. Student Access determines and facilitates reasonable accommodations, including academic adjustments and auxiliary aids, for students with documented disabilities. A qualified student with a disability is a person who meets the academic and technical standards requisite to admission or participation in a particular program of study. As defined by the Americans with Disability Act (ADA), a person with a disability has a physical or mental impairment that substantially limits one or more major life activities of the individual. This may include, but is not limited to, physical conditions, chronic health issues, sensory impairments, mental health conditions,
learning disabilities and ADHD. Student Access works with students with disabilities from all of OHSU’s educational programs and at each campus.

Each school has an assigned Program Accommodation Liaison (PAL), who acts as an “in-house” resource for students and faculty concerning access issues for students with disabilities. The PAL works in collaboration with Student Access to implement recommended accommodations for students with disabilities.

It is recommended that you contact Student Access to consult about possible accommodations if you a) received disability accommodations in the past, b) begin experiencing academic difficulties, and/or c) are given a new diagnosis from your healthcare provider.

Learn more about Student Access:
Phone: 503 494-0082
Email: studentaccess@ohsu.edu
Website: www.ohsu.edu/student-access

ACADEMIC HONESTY
Course participants are expected to maintain academic honesty in their course work. Participants should refrain from seeking past published solutions to any assignments. Literature and resources (including Internet resources) employed in fulfilling assignments must be cited. See http://www.ohsu.edu/xd/education/library/research-assistance/plagiarism.cfm?WT_rank=1# for information on code of conduct for OHSU and http://www.ohsu.edu/xd/education/teaching-and-learning-center/for-students/index.cfm for more information on citing sources and recognizing plagiarism.

In an effort to uphold the principles and practice of academic honesty, faculty members at OHSU may use originality checking systems such as Turnitin to compare a student’s submitted work against multiple sources.

To protect student privacy in this process, it will be necessary to remove all personal information, i.e. student name, email address, student u-number, or any other personal information, from documents BEFORE submission.

USE OF SAKAI
This course will have an online component, which can be accessed through Sakai, OHSU’s online course management system. For any technical questions or if you need help logging in, please contact the Sakai Help Desk.

Hours: Sakai Help Desk is available Mon – Fri, 8 am – 10 pm and weekends and holidays 12 pm – 5 pm
Contact Information:
(Toll-free) 877-972-5249
(Web) http://atech.ohsu.edu/help
(Email) sakai@ohsu.edu
**COURSE OBJECTIVES:** Understand the principles of and be able to apply the following aspects of Software Engineering:

- Requirements
- Specification
- Modeling
- Architecture
- Design
- Development
- Verification
- Validation
- Cost Estimation
- Quality Management
- Configuration Management
# COURSE OUTLINE:

<table>
<thead>
<tr>
<th>Dates in 2018</th>
<th>Readings (Sommerville text unless stated otherwise)</th>
<th>Assignments</th>
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</thead>
<tbody>
<tr>
<td>In Class Discussion on Wednesdays</td>
<td></td>
<td>Assigned on Mondays, due on the Wednesday of the following week.</td>
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**Week 1:** April 2 - April 6  
Chapter 1: Introduction  
Chapter 2: Software processes  
Homework 1 assigned.

**Week 2:** April 9 - April 13  
Chapter 4: Requirements Engineering  
Chapter 10: Dependable Systems  
Homework 1 due, 2 assigned.

**Week 3:** April 16 - April 20  
Chapter 11: Reliability Engineering  
Chapter 12: Safety Engineering  
Homework 2 due, 3 assigned.

**Week 4:** April 23 - April 27  
Chapter 5: System modeling  
Chapter 6: Architectural design  
Homework 3 due, 4 assigned.

**Week 5:** April 30 – May 4  
Chapter 7: Design and Implementation  
Chapter 22: Project management  
Homework 4 due, 5 assigned.

**Week 6:** May 7 - May 11  
Chapter 23: Project planning  
Midterm Exam: In class or online, details to be announced.  
No Homework due or assigned this week.

**Week 7:** May 14 - May 18  
Chapter 8: Software testing  
Chapter 13: Security Engineering  
Homework 5 due, 6 assigned.

**Week 8:** May 21 - May 25  
Chapter 9: Software evolution  
No Chapter: User interface design  
Homework 6 due, 7 assigned.

**Week 9:** May 28 - June 1  
Chapter 24: Quality management  
Chapter 25: Configuration management  
Homework 7 due, 8 assigned.

**Week 10:** June 4 - June 8  
Chapter 3: Agile software development  
Final Project 5 minute presentations  
Homework 8 due.

**Finals Week:** June 11 - June 15  
Final Exam, time and location to be announced

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**NOTE:** The syllabus and class schedule are subject to change by the instructor. Changes will be made with as much advance notice given as possible.