Syllabus – FA20 *EGR222: Software Engineering*

Gordon and Jill Bourns College of Engineering Mission Statement and Verse

"Preparing engineering students of excellence and character, with a Christian worldview, who are called to serve, equipped to lead and sent to engage the world with their lives and the appropriate use of technology."

"… For we are God's workmanship, created in Christ Jesus to do good works, which God has prepared in advance for us to do." *Ephesians 2:10*

Purpose of the Course

This course provides an introduction to computer science using the Java programming language as well as an overview of the principles of software engineering. This will provide the background and building block necessary for further study in the area of computer science and software engineering.

Course Description

Overview of the software development process. Includes requirements, design, construction, and testing of software. Software project planning. Analysis, architecture, and design of software systems using UML. Evaluating designs. Implementing designs using appropriate data structures, frameworks, and APIs. Prerequisite: CIS 268 or EGR 121. *(3 units)*

Pre/co –requisites

CIS 268 or EGR 121.

General Course Objectives (2,3,5,11)

Upon successful completion of this course, students should be able to:

1. Understand key OOP concepts and implement them in Java (2,3)
2. Design, develop, and test programs given requirements and constraints (2,3)
3. Understand and practice good procedural design heuristics and algorithmic problem solving (5)
4. Use appropriate software tools to design, develop and test a software application. (11)

Course Learning Outcomes

[1]

EGR 2 - an ability to design and conduct experiments, as well as to analyze and interpret data (b)

EGR 3 - an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability (c)

EGR 5 - an ability to identify, formulate, and solve engineering problems (e)

EGR 11 - an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice (k)

Instructor

Mi Kyung Han, Ph.D., CS
email: mhan@calbaptist.edu
Physical Office: TEGR 332 or TEGR 203 C (Conference Room inside TEGR 203)
Virtual Office: https://us02web.zoom.us/j/3597408607?pwd=OFBmbjYxUGFEci9qWXNHQkZKdDRKUT09
Meeting ID: 359 740 8607 (Passcode: drhan)

Office hours:
** For all office hours,
   appointment is highly recommended to minimize wait time. **
T/R 9-9:30 AM, 11:30 AM – 12:30 PM, 1:30 PM – 2 PM (Zoom or visit me at TEGR 203 C)
M 10:30 AM -12 PM (Zoom only)

Course Meeting Times (The Zoom link is different for each section)

EGR222 B: T/R 09:30 AM – 10:15 AM via Zoom + Hybrid Videos
https://us02web.zoom.us/j/83332249876?pwd=ZGJOVFVlWElqWnZBcUluaG04bVV3UT09
Meeting ID: 833 3224 9876
Passcode: 726438

EGR222 A: T/R 10:30 AM – 11:15 AM via Zoom + Hybrid Videos
https://us02web.zoom.us/j/85619906400?pwd=RmFuL0lqWjB5UDAvVjNUMU42YWM2Zz09
Meeting ID: 856 1990 6400
Passcode: 726438

Required Materials

Textbook: Building Java Programs: A Back to Basic Approach, 5th Edition. Stuart Reges and Marty Stepp. Pearson (4th edition is fine too)

Software: IntelliJ (IDE from JetBrains) Free, with your CBU ID.

Technological Support

This course will be supported by Blackboard. Go to http://www.calbaptist.edu and click on the Blackboard link. Grades will be posted on the Blackboard's Grade Center. Check in frequently for announcements, assignments, and discussions. Course materials such as PowerPoint slides, assignments, etc. will be posted on Blackboard. You are responsible for all material covered during lectures and assigned reading, not just what appears on the PowerPoint slides!

Plagiarism/Cheating vs. Collaboration

Collaboration is a very good thing. On the other hand, plagiarism or cheating is considered a very serious offense. Please don't do it! Concern about cheating creates an unpleasant environment for everyone. If you cheat, you risk losing your position as a student in the department and the college. The department's policy on cheating is to report any cases to the college cheating committee. What follows afterwards is not fun for anyone.

All university policies pertaining to plagiarism will be enforced in this course. You can read those policies in the CBU Student Handbook. **If you plagiarize in this course, you will receive an F on the given assignment and will result in F in the course as well.** As a point of information and clarification, you may wish to visit the following website: **http://www.plagiarism.org**

So how do you draw the line between collaboration and cheating? Here's a reasonable set of ground rules. Failure to understand and follow these rules will constitute cheating, and will be dealt with as per university guidelines.

The Gilligan's Island Rule: This rule says that you are free to meet with fellow student(s) and discuss assignments with them. Writing on a board or shared piece of paper is acceptable during the meeting; however, you should not take any written (electronic or otherwise) record about the assignment away from the meeting. This applies when the assignment is supposed to be an individual effort or whenever two teams discuss common problems they are each encountering (inter-group collaboration). After the meeting, engage in a half hour of mind-numbing activity (like watching an episode of Gilligan's Island), before starting to work on the assignment. This will assure that you are able to reconstruct what you learned from the meeting, by yourself, using your own brain.

The Freedom of Information Rule: To assure that all interactions are on the level, you must always write the name(s) of who you talk with about your assignments on your assignment. These names should be listed in a prominent location at the top of the first page of your assignment. If it is a programming assignment, include this as part of the comment.

Unacceptable work: See also **EGR 222 Grading Policy(in BB)** for details.
   I cannot grade your work in below cases, which means you will receive ZERO points.
   - **Late Assignments**
   - **Submissions not following the instruction provided**

- **Uploaded assignments are not downloadable, inaccessible, or in a different format than specified**
- **Your program does not compile**

In addition, if you program doesn't follow coding convention or style guideline you will get 20 % deduction of points.

Makeup Exams or Quizzes: There will be **NO make-up exams or quizzes** without prior permission from the instructor. Permissions to retake any missing exams or quizzes will be limited to emergencies only. Make-up exams or quizzes must to schedule through the **Office of Student Success**. Please refer to
http://www.calbaptist.edu/explore-cbu/offices/academic-success-center/make--exams/

Grading:

Graded Item	# of Items	Points per Item	Total Points	Percentage
Exercises	*	*	150	15%
Videos and Code Along	*	*	100	10%
HW	*	*	250	25%
Midterm Exam	2	125	250	25%
Final Exam	1	250	250	25%
Total			1000	100%

Grades will be assigned on the following basis:
A   93-100%   A- 90-92%   B+ 87-89%   B 83-86%   B- 80-82%
C+ 77-79%   C   73-76%   C-   70-72%   D+ 67-69%   D 63-66%   D- 60-62%   F below 60%

CSDS Rules of conduct:

As college students and soon-to-be professionals, your conduct around your peers and your professor are expected to be polite, respectful and non-distracting. In particular, this means the following:

- No use of cell phones in class (for calls, texting, browsing, gaming, playing music or any other function) unless required for a classroom activity. Check with your instructor if you have any questions.
- No use of any computer for a non-class related purpose (taking notes is OK, working on homework, gaming or browsing is not)
- Earphones are not allowed during any class sessions.
- Do not record the lecture without permission.
- No talking or other behavior that might distract another student
- No treating another class member or the instructor with disrespect
- No submitting late work via email (or any other method) pleading for consideration

For each violation of any of the above guidelines, five points will be deducted from your overall grade for the course

Late assignments

- Late assignments **WILL NOT BE ACCEPTED**.
- Students are encouraged to submit assignments early; do not wait until the last possible moment to submit assignments.
- There are no acceptable excuses for the assignments being late.

Attendance

- Attendance at all lectures and labs is required. Attendance will be taken at the beginning of classes. **If late, it is the student's responsibility to inform the professor after class**. Two late arrivals, or one lateness of 15 minutes or more, will count as one unexcused absence. For an absence to be excused, you must give the instructor a written/email notice in advance, or within 24 hours after class in case of an emergency. A note from your doctor, coach of campus sports team, court, etc. may be required if applicable. The instructor will determine if the absence is excused. You will lose 1% of your final grade (up to 5%) per two unexcused absences. The student is responsible for studying materials covered during missed classes. A personal makeup class during office hours is not acceptable. **Unless other arrangements are explicitly agreed upon by the instructor, all assignments are due at their original time as listed in the syllabus or in Blackboard in case of any excused or unexcused absence**.
- If a student decides to drop the course, it is their responsibility to do so by submitting a Drop Form to the registrar's office.
  - The instructor cannot drop a student from a class.
  - If the course is not properly dropped, the student will receive an "F" as the final grade.

Class Preparation

- Students are expected to prepare for each assignment prior to the class which presents the topic.
- There will be in class discussions and demonstrations.
  - Demonstrations are not the sole responsibility of the instructor, but from time to time individuals and teams will be required to demonstrate a technique.
- Plan to spend approximately six hours each week working on reading, reviewing, homework, and laboratory assignments to obtain a grade of "C" in this course.

Academic Dishonesty

- Academic dishonesty, as explained in the student handbook HONOR CODE policy, **WILL NOT BE TOLERATED**.
- Each student should become familiar with those offenses identified in the student handbook.
- A failing grade in the course will result from offenses identified as "cheating," especially the misrepresentation of assignments.
- ***All course work is the sole responsibility of the student***. Work performed by a student other than the name appearing on the assignment turned in, will be considered misrepresentation for **both** students for the assignment. At a minimum, a failing grade for the assignment and potentially the course will result from any incident of academic dishonesty.
- Students are expected to uphold the school's standard of conduct relating to academic honesty.
- Students assume full responsibility for the content and integrity of the academic work they submit. The guiding principle of academic integrity shall be that a student's submitted work, examinations, reports, and projects must be that of the student's own work.
- Students shall be guilty of violating the honor code if they:
  1. Represent the work of others as their own.
  2. Use or obtain unauthorized assistance in any academic work.
  3. Give unauthorized assistance to other students.
  4. Modify, without instructor approval, an examination, paper, record, or report for the purpose of obtaining additional credit.
  5. Misrepresent the content of submitted work.

- The penalty for violating the honor code is severe. Any student violating the honor code is subject to receive a failing grade for the course and will be reported to the Office of Student Affairs and Provost. If a student is unclear about whether a particular situation may constitute an honor code violation, the student should meet with the instructor to discuss the situation.

It is permissible to assist classmates in general discussions of computing techniques. General advice and interaction is encouraged. Each person, however, must develop his or her own solutions to the assigned projects, assignments, and tasks. In other words, students may not "share solutions" on graded assignments. Such collaboration constitutes cheating. A student may not use or copy (by any means) another's work (or portions of it) and represent it as his / her own. If help on an assignment is needed, contact the instructor; do not seek solutions from other classmates.

Classroom Behavior

Any acts of classroom disruption that go beyond the normal rights of students to:

- question and discuss the instructor's educational process or outside relative subject content,
- ingress and egress the classroom on time, or
- conduct normal communication

will not be tolerated. (see Student Life Policy described in the Student Handbook).

Children in class

The University does not provide childcare for the dependents of students, faculty, or staff. Students are not permitted to be accompanied by children / dependents during class sessions. (NOTE THE CHILDCARE (BABY-SITTING) POLICY IN YOUR STUDENT HANDBOOK.)

Appeals Policy

To appeal a grade on an individual assignment, send e-mail to your instructor's e-mail address within two weeks of the grade having been received. Overdue appeals will not be considered. To appeal a final course grade, use the normal CBU appeals process.

Incomplete Policy

Students will not be given an incomplete grade in the course without sound reason and documented evidence as described in the Student Handbook. In any case, for a student to receive an incomplete, he or she must be passing and must have completed a significant portion of the course.

Disability Policy

In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to "reasonable accommodations." Please notify the instructor during the first week of class of any accommodations needed for the course.

Tutor Assistance

Tutors are available in the Office of Student Success in Lancer Arms #54.

Sexual Harassment & Title IX Policy

Review the Sex Discrimination, Sexual Violence & Sexual Harassment section of the Student Handbook. All offences will be reported.

Student Handbook: http://www.calbaptist.edu/explore-cbu/offices/office-registrar/academic-catalogs/undergraduate/
Academic Catalog: http://www.calbaptist.edu/explore-cbu/offices/office-registrar/academic-catalogs/undergraduate/
Calendar: https://insidecbu.calbaptist.edu/ICS/Academics/Academic_Calendars.jnz

Tentative Course Calendar (subject to change)

	Topics	Class Activities	Prior Readings/ Videos	Work Due
8/25/2020	Lecture 0: Intro	Class Overview HW0 Assigned		
8/27/2020	Lecture 1: Methods/Loop Review	PI-Exercise Set 1 Assigned (#1.13, #2.17)	1.1-1.5 2.1-2.3 Video 1	Code Along 1 Due before class HW0 Due 8/28 11 PM
9/1/2020	Lecture 2: Systematic Thinking	PI-Exercise Set 2 Assigned (#4.19, #4.20) Systematic Thinking Sheet HW1 Assigned	2.4 3.1-3.4 Video 2	PI-1, Code Along 2 Due before class HW1 CP Due 11 PM
9/3/2020	Lecture 3: Scanner/String/ Java Graphics	PI-Exercise Set 3 Assigned (#3.22 #3G.11b, #3G.12) HW2 Assigned	4.1-4.3 Supplement 3G Video 3	PI-2, Code Along 3-1 Due before class HW1 Due 9/4 11 PM
9/8/2020	Review Day			Code Along 3-2 Due before class HW2 CP Due 11 PM
9/10/2020	Lecture 4: While Loop Random number	PI-Exercise Set 4 Assigned (#5.11, #5.20)	5.1-5.5 Video 4	PI-3, Code Along 4 Due before class HW2 Due 9/11 11 PM
9/15/2020	Lecture 5: Procedural Method Design, File Processing	PI-Exercise Set 5 Assigned (#6.12, #6.19) HW3 Assigned HW3 Worksheet	6.1-6.4 Video 5	PI-4, Code Along 5 Due before class HW3 CP Due 11 PM
9/17/2020	Lecture 6: Arrays	PI-Exercise Set 6 Assigned (#7.13, 7.18)	7.1-7.6 Video 6	PI-5, Code Along 6 Due before class HW3-1 Due 9/18 11 PM
9/22/2020	Lecture 7: Class and Object Constructor/ Encapsulation	PI-Exercise Set 7 Assigned (#8.18, #8.19) Practice Exam1 Handout	8.1-8.2 Video 7	HW3 Worksheet, PI-6, Code Along 7 Due before class
9/24/2020	Lecture 8: Review for Exam 1		8.3-8.5 Video 8	PI-7, Code Along 8 Due before class HW3-2 Due 9/25 11 PM
9/29/2020	**In-class Exam 1**	**A: 8:45AM – 10:15AM B: 10:30AM – 12:00 PM**		HW3 Final Due 9/30 11 PM
10/1/2020	Exam #1 Recap	PI-Exercise Set 8 Assigned (#8.20~#8.21) HW4 Assigned HW4 Worksheet		HW4 CP 1 Due 10/2 11 PM

	Topics	Class Activities	Prior Readings/ Videos	Work Due
10/6/2020	Lecture 9: Inheritance/Polymorphism	Inheritance Packet, Ticket Exercise 10 Assigned	Video 9	PI-8, Code Along 9 Due before class HW4 CP 2 Due 11 PM
10/8/2020	Lecture 10: Critter Demo	PI-Exercise Set 9 Assigned (#9.3, #9.4) HW5 Assigned	9.1-9.5 Video 10	Code Along 10 Due before class HW4 Final Due 10/9 11 PM
10/13/2020	Lecture 11: Object class and Equality	Object Packet	Video 11a Video 11b (UML Video)	PI-9, Code Along 11 Due before class
10/15/2020	Lecture 12: Abstract Class and Interface	Ticket Exercise (cont.) Abstract Class/Interface Packet	Video 12 (JUnit Video)	Ticket Impl. (EX10) Code Along 12 Due before class HW5-1 Due 11 PM
10/20/2020	Lecture 13: JUnit Testing/ Debugging	Object Packet JUnit and Debugging	10.1-10.3 Video 13	Ticket with JUnit (EX11) Code Along 13 Due before class HW5-2 Due 10/21 **5PM**
10/22/2020	Lecture 14: Critter Competition & Career Projection	PI-Exercise Set 12 Assigned (#10.17, #10.20) HW6, Final Project Assigned	Video 14	PI-12, Code Along 14 Due before class HW6-1 Due 10/26 11 PM
10/27/2020	Lecture 15: ArrayList and Comparable		Video 15	Code Along 15 Due before class
10/29/2020	Lecture 16: Java Collection 1	PI-Exercise Set 13 Assigned (#11.10, #11.14) HW7 Assigned	11.1-11.3 Video 16	Code Along 16 Due before class HW6 Final Due 11 PM
11/3/2020	Lecture 17: Java Collection 2	PI-Exercise Set 14 Assigned (#11.15, #11.18)	11.1-11.3 Video 17	PI-13, Code Along 17 Due before class HW7-1 Due 11 PM
11/5/2020	Lecture 18: Review	Practice Exam 2 PI-Exercise Set 15 Assigned (#8.22, #11.19)		HW7-2 Due 11 11/6 PM
11/10/2020	**In-class Exam 2**	**A: 8:45AM – 10:15AM B: 10:30AM – 12:00 PM**		PI-15 Due before class
11/12/2020	Exam 2 Recap/ Review for Final	(Optional) Requirements, Agile Development	Video 18-20	HW7 Final Due 11/16 11 PM
11/17/2020	**In-class Final Exam**	**A: 8:45AM – 10:15AM B: 10:30AM – 12:00 PM**		Final Project Due 11/18 PM

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Syllabus – EGR 222 A: Software Engineering
(ABET syllabus format)

1. Course number and name
   EGR222 A Software Engineering

2. Credits and contact hours
   3 Credits.
   M/W 1:15 PM – 2:15 PM at TEGR 229

3. Instructor's or course coordinator's name
   Mi Kyung Han, Ph. D.

4. Text book, title, author, and year: Building Java Programs: A Back to Basic Approach, 4th
   Edition. Stuart Reges and Marty Stepp. Pearson, 2016
   a. other supplemental materials: None

5. Specific course information
   a. brief description of the content of the course (catalog description)
      Overview of the software development process. Includes requirements, design,
      construction, and testing of software. Software project planning. Analysis,
      architecture, and design of software systems using UML. Evaluating designs.
      Implementing designs using appropriate data structures, frameworks, and APIs.
   b. prerequisites or co-requisites : CIS 268 or EGR 121.
   c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in
      the program: Required

6. Specific goals for the course
   a. specific outcomes of instruction, ex. The student will be able to explain the
      significance of current research about a particular topic.
      Upon successful completion of this course, students should be able to:
      1. Understand key OOP concepts and implement them in Java (2,3)
      2. Design, develop, and test programs given requirements and constraints (2,3)
      3. Understand and practice good procedural design heuristics and algorithmic
      problem solving (5)
      4. Use appropriate software tools to design, develop and test a software application.
      (11)
   b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other
      outcomes are addressed by the course. (2, 3, 5, 11)

      EGR 2 - an ability to design and conduct experiments, as well as to analyze and
      interpret data (b)
      EGR 3 - an ability to design a system, component, or process to meet desired needs
      within realistic constraints such as economic, environmental, social, political, ethical,
      health and safety, manufacturability, and sustainability (c)
      EGR 5 - an ability to identify, formulate, and solve engineering problems (e)

[11]

EGR 11 - an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice (k)

7. Brief list of topics to be covered
   Java programming, object oriented programming, requirements, unit testing, designing, UML, analysis, agile development, etc