**SWE 6743 OBJECT-ORIENTED ANALYSIS & DESIGN**

**Fall 2015**

**Professor**

## **Dr. Sheryl Duggins:** Office J365, Telephone: 678-915-7401 Email: [sduggins@kennesaw.edu](mailto:sduggins@kennesaw.edu?subject=FROM%20D2L),

## Home: All information related to this course will be in D2L

## Office Hours: Monday/Wednesday 2:00 – 4:30PM; I will have virtual office hours in D2L and will be available for chat (in the Virtual Office Hours Chat Room in D2L) or instant email Tuesday 6:00 – 7:00 PM; you may also call me during my office hours on Mon/Wed.; other days and times by appointment.

## Class Info: Class meets: 6:30 – 7:45 PM, Monday/Wednesday, in Room J106;

## Sections: 01 & M01

## Credit: (3-0-3)

## CRNs: 83191 & 83192

## Online section may view the class presentations synchronously via Collaborate in the D2L course during class time on Mondays/Wednesdays at 6:30PM OR asynchronously via Collaborate AFTER the lecture. VERY IMPORTANT: For asynchronous viewing, you must watch the archive and DO the in-class activities BEFORE the next class period starts. Online students are always welcome to attend class F2F if you are available.

## **Prerequisites**

SWE 6623 Software Engineering and CS 5123 Advanced Programming & Data Structures

**Texts**

***Head First Object-Oriented Analysis & Design,*** Brett McLaughlin, Gary Pollice & David West, O’Reilly, 2007 and

***The Unified Modeling Language User Guide (Second Edition)***, Grady Booch, James Rumbaugh & Ivar Jacobsen, Addison-Wesley Professional, 2005

## **Outcomes**

*Course Outcomes*

1. Students will be able to use abstraction and abstract data type formalisms to model software class design.
2. Students will learn and apply object-oriented methodologies including UML and RealTime UML to analyze and design software systems.
3. Students will utilize object-oriented iterative development process to model, specify, and design the solution to a real-world problem.

*Learning Module/Unit Outcomes*

In the Content tool on the toolbar in D2L, the course content is broken down by weeks. For each week, there is an overview page consisting of a goal for each week as well as expected learning outcomes for each week and instructions on how to proceed for that week. Additionally each week’s folder contains reading assignments, topics and files/urls to be discussed***. Before each week begins***, the student is expected to look at the overview page for that week and follow the instructions given, including downloading all files and COMPLETING the assigned reading before coming to class on Monday.

**Course Description**

This course focuses on object-oriented modeling techniques necessary to solve complex, real-world software engineering problems. Topics include the use of information hiding, object design methods, basic design patterns, abstraction and abstract data type formalisms. Object-oriented iterative development methodologies such as the Unified Process will be utilized. Techniques for transforming software requirements into high-quality language-independent object-oriented design are presented. The course includes a major iterative project in which the students will gain hands-on experience modeling a real-time system using use case analysis, responsibility-driven design, UML and RealTime UML.

**Assessment and Grades**

***Grading***

Due to the strong emphasis in the course on problem-solving and active learning, regular attendance/participation in class and in the online course is required, and your grade will reflect your classwork, participation, and for online students, your contributions to the online discussions.

Your grade for this course will be obtained by combining your scores in the following manner:

Final Grading Scale

Analysis & Design Project (5 parts) 50% 100 – 90% A

Midterm Exam 25% 80 – 89% B

Participation 25% 70 – 79% C

Total 100% 0 – 69% F

***Analysis and Design Project***

There will be one major analysis and design project comprising of 5 iterations, each one building on and expanding the previous model. These will be done using several different OOA/OOD methodologies and tools. Details will be given later.

***Examinations***

There will be one proctored midterm examination. To qualify for a make-up for the exam, the student MUST notify the professor PRIOR to the exam and have a documented valid reason, such as a medical emergency. Online students must either come to KSU to take the exam OR find an approved place (e.g., a university that is close to you) that will proctor your exam AND notify me as soon as you know that you will not be able to take it at KSU.

***Assessments***

This course will require students to do the weekly reading assignments and study the weekly notes BEFORE coming to class on Mondays (or viewing the archive for online students). Mondays will be spent going over the highlights of that week’s material, and students must be prepared to answer questions about the weekly content in class on Mondays. Generally, Wednesdays will be spent in one of two ways:

1. Doing a group problem-solving activity over the material in that week’s reading and notes; OR
2. Meeting with the professor as scheduled in Formative Team Project Reviews. After drop/add ends, you will be placed in your project team. You may choose your team members after I announce how many teams there will be, noting that teams may be comprised of both face-to-face (F2F) students and online students. After the team project begins, Wednesdays will be spent meeting with each individual team at the scheduled time (including online student teams if possible – Skype or FaceTime works well). All students are REQUIRED to attend these Team Project Reviews (either in person, or through technology discussed in class for online students).

***What are Formative Team Project Reviews?***

Both software engineering, and specifically Analysis and Design, are processes that are done by teams. As you’ll see in the following section, your grade is very heavily based on your project. Rather than give you feedback once at the end of term (i.e., a grade, which is “summative” assessment), I believe that to learn object-oriented analysis and design requires that you practice it like it’s done in the real world. It’s a hands-on process that you must be engaged in. These Formative Team Project Reviews will allow each team to have one-on-one sessions with the professor, during which we will discuss your individual deliverables, processes, success, and group dynamics. You will be given constructive feedback that you can utilize to improve your project. Formative assessment means you’ll be getting frequent feedback to identify and remediate your group as well as feedback on individual deficiencies to help improve your learning experience. These will be very structured sessions that will have precise starting and ending times to accommodate all the teams scheduled that evening. Punctuality as well as attendance is absolutely required for this to work. Once the team members have been finalized, you need to find a time that all the team members can meet during the class period for these Wednesday review sessions. I’ll give more information about this later.

***Attendance/Participation***

Class participation is a substantial part of your course grade. Online students should log into the course *at least* once a day during the work week (Monday – Friday). This makes sure you stay current with any new information that is posted by either the professor or fellow-classmates.

ALL students should check in the Discussion tool: ***From Your Instructor,*** as well as the ***News*** for any information from the professor EVERY TIME you log into the course. You should be aware that information not in the book will be presented in the class discussions, class notes, readings, and class presentations and you will be held responsible for it. You are responsible for announcements, assignments, and syllabus revisions made in the class discussion areas.

For online students, part of your participation grade will be determined by your reading of the online discussions and other material and by the extent that you contribute to those online discussions. You are expected to read *every item* that is posted in the discussion areas. You are also expected to actively participate in the online discussions in the Discussion tool by making at LEAST three significant posts (content-based, not just “I agree with what Sam said” types of posts) per week in the Course Content discussion forum under that week’s topic(s).

Your participation grade is based on the following.

1. Class preparedness – You need to have read the assigned text readings and class notes BEFORE coming to class on Mondays and be able to participate appropriately. If you are unable to answer a question, that may indicate a lack of preparedness for that day.
   1. F2F – I will use the Socratic method with respect to the readings to assess your preparedness for class.
   2. Online – There are two ways to indicate your preparedness. If you are participating remotely but synchronously with the class, you will need to have headphones with a speaker and microphone that will allow you to answer questions just like the F2F students. You also will be able to address the questions discussed in class in that week’s topic in the D2L Discussion Tool.

2.) Class activities and Team Project Reviews – as stated above, most Wednesdays will either be class problem-solving activities or Team Project Reviews. Both F2F and online students are required to participate in both of these activities. I will let you know if you are not performing satisfactorily in either of these events so you will have the opportunity to improve or withdraw from class. On days that are spent working on a class activity, online folks must post your activity results in the Class Activities topic in the discussion tool before the next class period. Note: if you are the FIRST to post for that week’s problem, you will need to create a thread entitled Class Activity for [date or week]. Note also that the F2F students will be working in teams in class to solve these problems; so online folks may work in teams as well. Be sure to include everyone’s name that worked on that solution within the post. Also know that you should NOT watch the end of the problem solving archive NOR look into the Class Activity posts until AFTER you individually have solved the problem. I am a strong believer in learning by doing, which means you must actively engage in the problem solving to master the content. Note also that this serves as attendance for asynchronous students, but more importantly, it guarantees that each of you is staying up-to-date with the class content.

1. Weekly Discussion Posting and Discussion Leading for Online students in D2L’s Discussion tool. As stated above, each online student must make THREE discussion posts in the Content Area of the Discussion Tool for that week’s topic, DURING THAT CALENDAR WEEK. One of those **three** required posts each week must ask a Leading question, in which you start a new thread about the topic being discussed that week. Your other posts can include replying to other students’ questions about your post, as well as your answers to other students’ Leading questions.

Additionally, after add/drop ends, each online student will sign-up for a week in which he/she Leads the Weekly Discussions (there will be more than one person leading the discussion for several of the weeks). This means during that Calendar Week (not before or after) the Discussion Leader(s)’ Leading Question must include a reference to related outside information: an article – either cited as a reference in one of your texts, or an article that you find – and you need to include the URL of the article in the Leading Question. In the post you give a high-level summary of the article, and ask one or more open discussion questions about your reference. As Discussion Leader(s), your job is to keep the flow going; you are the expert that week. So answer the questions posted about your article and ask more questions. During the week you are the Discussion Leader, you should have MORE THAN THREE posts, as you are in charge of the discussion.

1. Occasional homework and quizzes. These will serve to make sure you have mastered the content.

THE BOTTOM LINE: This is NOT a class you can hide in, slack off in, or not contribute fully in. If you are unable to make a commitment to be actively engaged in this course this semester, including participating in the Team Project Reviews, I suggest you wait and take it next fall.

***About online classes:***Online classes require about the same amount of study and effort as traditional classes. For a three-credit-hour traditional class, you would expect to spend 150 minutes in class each week and a minimum of 300 minutes in study and preparation. That's 450 minutes: seven and a half hours. So, for this online class, you should expect to spend seven to eight hours each week on coursework, too. Distance learning requires more individual discipline than traditional classes, and requires that you have at least some control over your time and schedule.

**Course Policies**

***Academic Misconduct***

Every KSU student is responsible for upholding all provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. The Code of Conduct includes the following:

Section II of the Student Code of Conduct addresses the University’s policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an “informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct’s minimum one semester suspension requirement.

Students involved in off-campus activities shall not act in a disorderly or disruptive fashion, nor shall they conduct any dangerous activity.

Students involved in off-campus activities shall not take, damage or destroy or attempt to take, damage or destroy property of another. See: <http://catalog.kennesaw.edu/preview_course.php?catoid=27&coid=48103&print>)

***Disability Statement***

See: <http://www.kennesaw.edu/stu_dev/dsss/staffpages/syllabus.shtml>

Important notice: Any student who, because of a disabling condition, may require some special arrangements in order to meet the course requirements should contact the instructor as soon as possible to arrange the necessary accommodations. Students should present appropriate verification from KSU Student Disability Services. No requirements exist that accommodations be made prior to completion of this approved University process.

Any student with a documented disability needing academic adjustments is requested to notify the instructor as early in the semester as possible. Verification from KSU Student Disability Services is required. All discussions will remain confidential.

If you have a hidden or visible disability that may require classroom or test accommodations, please see me as soon as possible during scheduled office hours. If you have not already done so, please register with KSU Student Disability Services, the office responsible for coordinating accommodations and services for students with disabilities.

Please contact the instructor immediately if you have or think you may have a disability or medical condition which may affect your performance, attendance, or grades in this class and for which you wish to discuss accommodations of class-related activities or schedules. Accommodations are arranged on an individualized, as-needed basis after the needs and circumstances have been evaluated.

If you have a specific physical, psychiatric, or learning disability and require accommodations, please let me know early in the semester so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Student Disability Services office, located in the Student Center room 267, and obtain a list of approved accommodations.

If you believe you qualify for course adaptations or special accommodations under the Americans with Disabilities Act, it is your responsibility to contact the Student Disability Services office in the Student Development Center and provide the appropriate documentation. If you have already documented a disability or other condition that would qualify you for special accommodations, or if you have emergency medical information or special needs I should know about, please notify me during the first week of class. You can reach me by email at [sduggins@kennesaw.edu](mailto:sduggins@kennesaw.edu), phone at 678-915-7401, or you can schedule an appointment to meet me in J365 at a determined time. If this location is not convenient for you, we will schedule an alternative place for the meeting. If you use an alternative medium for communicating, let me know well in advance of the meeting (at least one week) so that appropriate accommodations can be arranged.

***Course Withdrawal***

Please refer to the KSU Graduate Catalog. See: [http://catalog.kennesaw.edu/content.php?catoid=24&navoid=2171&hl=Withdrawal&returnto=search - withdrawalfromclasses](http://catalog.kennesaw.edu/content.php?catoid=24&navoid=2171&hl=Withdrawal&returnto=search#withdrawalfromclasses)

***Religious Observance***

If a student wishes to observe a religious holiday, they must notify the instructor at least two weeks in advance to discuss acceptable ways of making up any missed work because of the absence. It is the student's responsibility to be proactive and to handle this early in the semester.

***Course Schedule***

In D2L the course is broken down by weeks. There is also a Calendar tool that will tell you what weekly topic you should be studying for each week. Discussion topics as well as Dropbox assignments will appear on the Calendar.

However, to help with pacing, the schedule is subject to change; this includes the dates on assignments and exams. If dates change, they will be announced in class, in the NEWS notification tool, and email. However, it is expected that students review the schedule periodically.

***Writing Center***

The KSU Writing Center helps students in all majors improve their writing. Experienced, friendly writing assistants help with topic development, revision, research, documentation, grammar, and more. For more information or to make an appointment, visit writingcenter.kennesaw.edu or stop by English Building, Room 242 (Kennesaw campus) or Building A, Room 184 (Marietta campus).

***Class Cancellation Policy***

While class cancellation does not apply to an asynchronous online course, should instructional delays occur due to server or connection problems or other unforeseen circumstances, we will endeavor to remain on schedule. Such remedies may include adjustments to due dates, online discussion or tutoring sessions, etc. If class is canceled, I will email you as soon as I know and post signs on the door.

***Course Communication and Professor Response Time***

Please email me at my KSU email: [sduggins@kennesaw.edu](mailto:sduggins@kennesaw.edu?subject=MAIL_FROM_D2L). ***We will not be using the email feature of D2L in this course.*** ***Please set the D2L email to forward any email you receive to your Zimbra email account*** (from KSU homepage, go to Current Students, then you’ll see Student Email on the bottom left of the page).I will try to respond to email questions submitted by Zimbra Email within 24 hours during the workweek (Monday – Friday). I will not regularly be checking email over the weekends. If you need to contact me, email me anytime, call me during my office hours, make a post in the From Your Instructor discussion topic in D2L, or login during my virtual office hours for an instant response. Please Note: I frequently forget to check my phone, so for quicker service, ALWAYS email as the first point of contact.

Please use the From Your Instructor discussion topic for ALL questions related to information about the course so all your classmates will be able to “hear” your question and my answer. Only email me for personal reasons or if I ask you to.

***Technology Requirements***

Computers located in on-campus labs or libraries **cannot** be used as the primary computer resource for taking online classes. You will need the reasonably small suite of hardware and software listed below.

Required Hardware:

* Computer: A personal computer with a relatively current operating system and monitor.
* Sound: A sound card with speakers or headphones.
* Voice: A microphone for recording your presentations and asking/answering questions. (An inexpensive microphone/headphone headset can be purchased for under $20.)
* Access to a scanner or fax.

Strongly Recommended Hardware:

* Printer connected to the computer
* CD-ROM drive
* Scanner or Fax. Some of the assignments will need to be scanned for presentation/submission. If you do not have access to a scanner, you may use the school’s scanner in the CSE lab or email me pictures from your smart phone.
* Internet Connectivity: High speed Internet connectivity (cable or DSL) is required.

Required Software:

* + Microsoft Office XP or beyond, including: Word, Excel, Access, PowerPoint (For this course only you do not need the complete MS Office suite; a word processing program that can save programs in MS Word format is sufficient. [Open Office](http://www.openoffice.org) is one such program, and it is free!
  + Web Browser: A JavaScript enabled Web browser. Adobe Acrobat Reader, available free from [Adobe.](http://www.adobe.com/products/acrobat/readstep2.html)
  + Virus protection software

## **Course Materials**

All course materials will be placed in D2L Brightspace. Go to <http://www.kennesaw.edu> and click on Current Students, then you’ll see D2L Brightspace on the bottom left of the page. This will take you to instructions, help, and the login page. At the login page, you enter your KSU email userid and password, and after authentication, click on our course name. ***NOTE: I will combine all students (F2F and Online) into the SWE 6743-W01 section***. If you don’t see this course in your list of courses, email me ASAP; it means you have added this course after I moved folks.

The reading assignments as well as the lecture notes and other pertinent information will be placed on the calendar and in the learning modules of the homepage. Some additional reference material may be placed on electronic-reserve (e-reserve) in the library under the professor’s name and course number. Instructions on how to access this information will be provided when the first source is placed on e-reserve. You should check the course frequently to stay current with announcements, emails and assignments. Students are expected to have read the assigned readings and obtained the lecture notes ***prior*** to coming to the live session OR watching the Collaborate video each class day. Since the live class is a Monday/Wednesday class, weekly reading assignments will be due on Monday. I will hold virtual office hours where we can chat, IM, or instant email. Logging in during my virtual office hours is optional.

***Orientation to the Course* – this is ONLY required for ONLINE students but f2f students who are unfamiliar with D2L Brightspace are encouraged to do this as well since course notes, reading assignments, and the course calendar will be placed in D2L. Students who plan on occasionally attending class virtually (e.g., if you are ill or out of town and have to miss class) and have not used D2L before need to complete this unit. Students who have had me for a class before in D2L do NOT need to do the orientation. The orientation is found in the Student Orientation folder and is called Orientation to the Course. Note there are several other orientations in that folder you should do to become familiar with all the D2L tools.**

***Unit 0 - Orientation to the Course***

After completing this orientation you will:

* Gain an understanding of what is required for successful completion of this course
* Become familiar with the course design and structure
* Become acquainted with your instructor and other students in this course
* Become familiar with the syllabus
* Learn to use the D2L tools we’ll be using in this course

Online students please complete the Orientation Assignments **during the first three days of the semester**. NOTE: If you have had an online or partially online course with ME before in D2L, you do NOT have to do this. But I would appreciate if all students introduce him/herself and post a picture as part of your profile.

**Important Dates Fall Semester 2015**

First Day of Class: Monday, August 17

Labor Day Holiday: Saturday, September 5 - Monday, September 7

Last Day to Withdraw: Wednesday, Oct. 7

Thanksgiving Holiday/Fall Break: Monday, Nov. 23 – Sunday, Nov. 29

Last Day of Class: Monday, December 7