

CSCI 528: OBJECT ORIENTED PROGRAMMING, Fall 2016

INSTRUCTOR:

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CLASS MEETING TIMES:

Web Based
Aug. 29, 2016 - Dec. 16, 2016

TEXTBOOK:

Author: Horstmann, Cay
Title: Object-Oriented Design and Patterns 2nd Edition
Publisher: John Wiley & Sons, Inc.
ISBN: 0-471-74487-5

CREDIT HOURS: 3

PREREQUISITES:

CSCI 516 and CSCI 520

STUDENT LEARNING OUTCOMES:

- (CO528.1): **Software Engineering Basics.** Students will be expected to apply knowledge of the software development cycle to write programs using the object oriented programming paradigm.
- (CO528.2): **Classes basics/advanced.** Students will become comfortable at designing and implementing classes as well as creating and manipulating objects belonging to those classes. Students will also become familiar with advanced topics such as reflection and the use of GoF design patterns.
- (CO528.3): **Overloading.** Students will learn how to take advantage of function overloading so as generate more readable and maintainable code suitable for large software projects.
- (CO528.4): **Polymorphism/Virtual functions.** Students will learn to develop hierarchies of related classes. They will design and implement superclasses and interfaces that use common field/method names but have base class dependent implementations. Students will learn the principles of code-refactoring and efficient code reuse.
- (CO528.5): **Templates/Generic Programming.** Students will learn to design, implement, and use generic classes and methods. Students will learn about the limitations of generic programming, i.e. type erasure. Students will also learn how to throw and handle exceptions for dealing with

exceptional situations and errors. Students will design custom exception types.

(CO528.6): **UML**. Students will use the Unified Modeling Language to model the static and dynamic behavior of object oriented software.

(CO528.7): **Integration Project**. Students will complete a comprehensive final project to include design/analysis as well as implementation.

COURSE DESCRIPTION:

This course investigates object-oriented methods including object-oriented programming, analysis and design. Current methodology is emphasized. The use of object-oriented features such as encapsulation, information hiding, inheritance and polymorphism is reinforced by class assignments and programming exercises. Prerequisites: CSci 516 and 520

METHOD OF EVALUATION (Tentative):

Your grade in the course will be calculated as follows:

Programming Assignments:	25 %
3 Exams:	25 % each (lowest dropped)
Final Project:	25 %

Assignments and projects will be assigned on eCollege and must be turned into the **correct** dropbox. Three exams will be administered. I will keep only your two best scores and drop the lowest. Because of this policy, no makeup exams will be given. If you have to miss an exam for any reason, this will be the exam that will not be counted.

All code must be readable. What this means is that you indent nested statements and provide a generous amount of comments. As an example, consider the following two pieces of code, both of which calculate the factorial of an integer n:

```
//Good Code

/*This function calculates the factorial of its non-negative
integer input n. Output type is integer.*/
public static int factorial(int n)
{
    if (n == 0)                //Base Case: 0! = 1
        return 1; else
        return n*factorial(n-1); //For n > 0, recursively let //n! =
                                n*factorial(n-1)
}

//Bad
Code
public static int fctrl (int n) {return n>0?n*fctrl (n-1):1;}
```

While both are correct, the second version can be very difficult for another person to understand. Conversely, don't over-comment your code to the point where I'm struggling to find the locations of the actual instructions. When evaluating your code, I will take coding style into account. I believe that it is imperative for programmers to produce readable code, especially when working on massive team-based software development projects.

Your final letter grade will be determined as follows:

- A - total number of points ≥ 89.5
- B - $79.5 \leq$ total number of points < 89.5
- C - $69.5 \leq$ total number of points < 79.5
- D - $59.5 \leq$ total number of points < 69.5
- F - total number of points < 59.5

I reserve the right to curve the grades in the course; however, for a given raw average, you will at least earn the grade letter shown above (if not better). As you will notice, I have already incorporated a standard rounding scheme into the schedule of grades. Thus, please do not ask me to round your grade at the end of the semester.

For this class, it is permissible to assist classmates in general discussions of computing techniques. General advice and interaction are encouraged. Each person, however, must develop his or her own solutions to the assigned projects, assignments, and tasks. In other words, students may not "work together" on graded assignments unless noted in the project instructions. 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 the instructor receives two or more assignments which appear to be identical and the result of dishonesty, all parties involved will receive a zero on that assignment. Keep track of your work and do not share with others. If multiple events like this occur, the instructor reserves the right to award a failing grade for the course.

TECHNOLOGY REQUIREMENTS

In order to successfully participate in and complete this course, you must have access to a computer with internet access that can run the e-College software. You will also need access to word processing software (preferably Microsoft Word). Within the e-College interface, you must be accessible with the following tasks: reading and posting to a discussion thread, uploading and downloading documents from "Doc Sharing," uploading homework assignments/papers into an appropriate drop box, and taking exams online. If you are uncomfortable with performing these tasks, then you are encouraged to view the tutorial that is offered on the e-College website. In addition, you can always ask the e-College technical support staff or me if you require assistance.

For more detailed information about technology requirements, please see the separate Technology Requirements section found later in this syllabus.

ACADEMIC ETHICS:

"All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment."
(See Student's Guide Handbook, Policies and Procedures, Conduct).

ATTENDANCE POLICY:

Since this is an online course there are no official face to face meetings. However, students are expected to complete all the assigned readings and view all online class lectures. All assignments must be turned in ON TIME. Any student wishing to withdraw from the course must do so officially as outlined in the class schedule. **THE INSTRUCTOR CANNOT DROP OR WITHDRAW ANY STUDENT.**

COURSE REQUIREMENT DEADLINES:

Credit will be given for ONLY those exam(s), program(s), and/or project(s) turned in no later than the deadline(s) as announced by the instructor of this class unless prior arrangements have been made with the instructor.

ACADEMIC ETHICS AND HONESTY STATEMENT:

Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion. "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Handbook, Policies and Procedures, Conduct).

Academic dishonesty includes, but is not limited to, cheating on tests, plagiarism and collusion. ***Cheating*** includes copying from another student's test or homework assignments or projects or quizzes, using materials not authorized, collaborating with or seeking aid from another student during a test, knowingly using, buying, selling, stealing, or soliciting the contents of an unadministered test, and substituting for another person to take a test. ***Plagiarism*** is the appropriating, buying, receiving as a gift, or obtaining by any means another's work and the unacknowledged submission or incorporation of it in one's own written work. ***Collusion*** is the unauthorized collaboration with another person in preparing written work for the fulfillment of course requirements. Academic dishonesty is a serious offense in college. You will be given not only a failing grade on the assignment or test, but also a failing grade for the class. Further, it will result in suspension from college.

PLAGIARISM:

In any written paper or test or assignment or quiz or project including code and/or documentation, you are guilty of the academic offense known as plagiarism if you half-copy or copy another author's sentences, words or any part of the content. **This will result in an automatic grade of "F" for the course.** Hence any of these must be fully avoided in order not to fail the class.

Students copying from work done in previous semesters by former students as well as copying from internet sources without proper referencing will result in you failing this course. You cannot mix the author's words with your own or "plug" your synonyms into the author's sentence structure. To prevent unintentional borrowing, resist the temptation to look at the source as you write. The author's words, phrases, sentences must be put in your words and in your way of writing! When you do this, you are demonstrating your ability to understand and comprehend the material!

STUDENTS WITH DISABILITIES:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce
Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: Rebecca.Tuerk@tamuc.edu

Website: [Office of Student Disability Resources and Services](http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/)
<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

CAMPUS CARRY STATEMENT

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to (<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>) and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

NONDISCRIMINATION NOTICE:

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Online Course and eCollege Technology Requirements

- To fully participate in online courses you will need to use a current Flash enabled browser. For PC users, the suggested browser is Google Chrome or Mozilla Firefox. For Mac users, the most current update of Firefox is suggested.
- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
 - 512 MB of RAM, 1 GB or more preferred
 - Broadband connection required courses are heavily video intensive
 - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution
- You must have a:
 - Sound card, which is usually integrated into your desktop or laptop computer
 - Speakers or headphones.
 - *For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.
- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: [JAVA web site http://www.java.com/en/download/manual.jsp](http://www.java.com/en/download/manual.jsp)
- Current anti-virus software must be installed and kept up to date.
- Run a browser check through the Pearson LearningStudio Technical Requirements website. [Browser Check http://help.ecollege.com/LS_Tech_Reg_WebHelp/en-us/#LS_Technical_Requirements.htm#Browset](http://help.ecollege.com/LS_Tech_Reg_WebHelp/en-us/#LS_Technical_Requirements.htm#Browset)

Running the browser check will ensure your internet browser is supported.
Pop-ups are allowed.
JavaScript is enabled.
Cookies are enabled.

- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
 - [Adobe Reader https://get.adobe.com/reader/](https://get.adobe.com/reader/)
 - [Adobe Flash Player \(version 17 or later\) https://get.adobe.com/flashplayer/](https://get.adobe.com/flashplayer/)
 - [Adobe Shockwave Player https://get.adobe.com/shockwave/](https://get.adobe.com/shockwave/)
 - [Apple Quick Time http://www.apple.com/quicktime/download/](http://www.apple.com/quicktime/download/)
- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

- For additional information about system requirements, please see: [System Requirements for LearningStudio](https://secure.ecollege.com/tamuc/index.learn?action=technical)
<https://secure.ecollege.com/tamuc/index.learn?action=technical>

Online Access and Navigation in eCollege

Pearson LearningStudio (eCollege) Access and Log in Information

This course will be facilitated using Pearson LearningStudio, the learning management system used by Texas A&M University-Commerce. To get started with the course, go to [myLeo](http://www.tamuc.edu/myleo.aspx). <http://www.tamuc.edu/myleo.aspx>

You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamuc.edu.

It is strongly recommended you perform a "Browser Test" prior to the start of your course. To launch a browser test, login to Pearson LearningStudio, click on the "My Courses" tab, and then select the "Browser Test" link under Support Services.

Pearson LearningStudio Student Technical Support

Texas A&M University-Commerce provides students technical support in the use of Pearson LearningStudio.

Technical assistance is available 24 hours a day/ 7 days a week.

If you experience LearningStudio (eCollege) technical problems, contact the LearningStudio helpdesk at 1-866-656-5511 (toll free) or visit [Pearson 24/7 Customer Support Site](http://247support.custhelp.com/) <http://247support.custhelp.com/>

The student help desk may be reached by the following means 24 hours a day, seven days a week.

- **Chat Support:** Click on '*Live Support*' on the tool bar within your course to chat with a Pearson LearningStudio Representative.
- **Phone:** 1-866-656-5511 (Toll Free) to speak with Pearson LearningStudio Technical Support Representative.

Accessing Help from within Your Course: Click on the '*Tech Support*' icon on the upper left side of the screen inside the course. You then will be able to get assistance via online chat or by phone.

Note: Personal computer problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, an Internet cafe, or a bookstore, such as Barnes & Noble, etc.

Policy for Reporting Problems with Pearson LearningStudio

Should students encounter Pearson LearningStudio based problems while submitting assignments/discussions/comments/exams, the following procedure **MUST** be followed:

1. Students must report the problem to the help desk. You may reach the helpdesk at 1-866-656-5511.
2. Students **MUST** file their problem with the helpdesk and obtain a helpdesk ticket number
3. Once a helpdesk ticket number is in your possession, students should email me to advise me of the problem and to provide me with the helpdesk ticket number
4. At that time, I will call the helpdesk to confirm your problem and follow up with you

PLEASE NOTE: Your personal computer/access problems are not a legitimate excuse for filing a ticket with the Pearson LearningStudio Help Desk. You are strongly encouraged to check for compatibility of your browser **BEFORE** the course begins and to take the Pearson LearningStudio tutorial offered for students who may require some extra assistance in navigating the Pearson LearningStudio platform. **ONLY** Pearson LearningStudio based problems are legitimate.

myLeo Support

Your myLeo email address is required to send and receive all student correspondence. Please email helpdesk@tamuc.edu or call us at 903-468-6000 with any questions about setting up your myLeo email account. You may also access information at [myLeo](https://leo.tamuc.edu). <https://leo.tamuc.edu>

Learner Support

Go to the following link [One Stop Shop](http://www.tamuc.edu/admissions/onestopshop/)- created to serve you by attempting to provide as many resources as possible in one location. <http://www.tamuc.edu/admissions/onestopshop/>

Go to the following link [Academic Success Center](http://www.tamuc.edu/campusLife/campusServices/academicSuccessCenter/)- focused on providing academic resources to help you achieve academic success. <http://www.tamuc.edu/campusLife/campusServices/academicSuccessCenter/>

Tentative Schedule of Topics

Week	Monday of Week	Topic Scheduled
1	August 29	A Crash Course in Java
2	September 5	The Object-Oriented Design Process
3	September 12	Guidelines for Class Design
4	September 19	Interface Types and Polymorphism
5	September 26	Patterns and GUI Programming
6	October 3	Exam 1
7	October 10	Inheritance and Abstract Classes
8	October 17	The Java Object Model
9	October 24	Reflection and Generic Programming
10	October 31	Frameworks
11	November 7	Exam 2
12	November 14	Multithreading
13	November 21	More Design Patterns
14	November 28	T.B.A.
15	December 5	Project Demos and Final Exam
16	December 12	Final Exam