

# **CSS 341 : Fundamentals of Programming Theory and Applications**

## **Course Syllabus-Autumn 2009**

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**Office Hours:** Tuesdays & Thursdays 9:30 – 10:30 and Wednesdays 3:30-4:30 , and by appointment. It is best to check with me ahead of time, even for a visit during normal office hours, especially if you are making a special trip for that purpose. I am in my office for considerable periods every day and will be glad to make appointments outside of the nominal office hours.

**Class Times:** 11:00 – 1:05, Tuesdays and Thursdays Room UW1-120

**Prerequisite:** CSS 161 or equivalent.

**Mid Term Exam:** November 5, in class

**Final Exam:** December 15, in class

**Texts:**

- “Starting out with Programming Logic and Design,” Tony Gaddis, (Pearson Education, Boston, 2008)
- “VBScript in a Nutshell”, Paul Lomax, Matt Childs and Ron Petrusha, (O’Reilly, Sebastopol [CA], 2003)

**Reserve Material:** The text books are on the course reserve shelf in the library. A number of computer science related reference manuals are available as E-books from the library. From time to time, journal articles and book chapters may be included as required reading in the course. They will be available on electronic reserve.

### **Course Description from Catalog**

#### **CSS 341 Fundamentals of Programming Theory and Applications**

(Charles F. Jackels)

Fundamental concepts and techniques for analysis, design and implementation of computer programming.

#### **Specific Course Goals**

We will be learning fundamental concepts and techniques in solving practical problems based on analyzing, designing, and implementing computer programs. We will

accomplish these goals by developing theoretical and practical programming experience including:

- Modular design, logic flow, data abstraction and pseudo-code.
- Basic programming constructs, functions, and I/O.
- Introduction to sorting and searching algorithms and recursion.
- Programming development cycle, emphasizing testing and debugging
- Solving practical problems based on automating existing commercial applications.

**Partner Assignments.** You will be divided by the instructor into groups of two students each. These groups will be the basis for: a) discussions and active learning exercises both in class and out of class, b) research, writing, and presentation of course projects, c) collaborative programming assignments (MP's), and d) occasional presentations in class. *This work will be accomplished both in person and via electronic communication.*

## **Class Participation, Homework and Collaborative Problems.**

**Class Participation.** Significant class time will be spent in discussion, active learning, in-class problem solving, occasional in-class quizzes, and student presentation. Students will be assigned grades based on their participation in these class activities as well as follow-up questions to be done after class. The greatest part of this grade by far will come from completing the active learning activities in class. *If you are missing from class, you cannot make up the participation grade.*

**Homeworks.** There will be several graded individual homework problem assignments (HW's) given during the term. They may take the form of short answers, quantitative exercises, or programming problems. Generally, these will be individual efforts, but ones that permit consultation with your partner. The detail and extent of grading will vary from week to week, depending on the time available. *In most cases, the homeworks will only be turned in electronically.*

**Machine Problems.** There will also be a series of six collaborative programming assignments (MP's). These must be addressed collaboratively, with a common grade for you and your partner. Details will be provided for each MP assignment. *In all cases, the MP's will be submitted electronically.*

**Grading of Machine Problems.** These will be graded based on three major criteria: correctness, efficiency, and style. Here is [the rubric](#) I will follow when grading your programming assignments. If your program does not run, or has any run-time errors, or does not produce any output, you will not receive more than ~30% of the allocated credit. If your program is based on an inefficient algorithm, you will not receive more than ~65% of the allocated credit even if it runs correctly. If your program is difficult to read, is based on unusual constructs, and/or contains insufficient comments, you will lose a significant percent of the credit even if it runs correctly and efficiently. The above given percentages are approximate and for your reference. In an actual assignment, these numbers may vary. Each submission will be accompanied by a description and assessment of the software development process used by you and your partner. That will receive 5-10% of your overall grade for the problem.

**Back-up Copies.** You are responsible for maintaining back-up copies of all assignments, computer programs, etc. If an assignment should be lost or misplaced during the submission or grading process, it is your responsibility to provide a copy of that assignment upon request. Always maintain current backup copies of all of your work. Computer crashes do not qualify as “emergencies” in this class.

**Exams.** The mid-term examination will be based upon approximately the first 50% of the course material. The final exam will be cumulative, but with an emphasis on the last 50% of the course. The exams may be mixtures of programming problems, design discussions, and short answer questions or essays.

**Classroom Rules.** These basic rules, in addition to the requirements of the UWB Handbook, apply to the instructor and all students at all times in the classroom. If you cannot observe them at any time, you are expected to leave the classroom:

- No use of computers for web surfing, e-mail, or any other activities not directly related to class.
- No headphones, blue tooth earphones, etc in the classroom.
- No cell-phone calls, rings, musical interludes, etc., during class.
- All views are to be heard and engaged respectfully. As scholars, we are expected to analyze subject matter critically and express reasonable positions that are based on logic and fact rather than on emotion. **In no case are *ad hominem* arguments permitted in CSS 341.**

**Attendance: Class & Exams.** Any excuse for missing an exam *other than illness or family emergency* must be cleared with me at least one week ahead of time. If you cannot attend class on an exam day because of illness or emergency, you are expected **before class** to contact me by phone, leave a voice mail message, leave a message for me with the Computing and Software Systems office, or leave me an e-mail message. Failure to notify me in one of these ways may result in you not receiving consideration for a make-up examination.

Regular class attendance is expected, although roll calls will not be generally taken. If you are not present to participate in-class activity, that will, of course, profoundly affect your grade on that assignment. Missed in-class work (for whatever reason) *cannot* be made up.

**Late Assignments.** Assignments with due dates will not be accepted late, *unless otherwise noted in the assignment instructions*. If you are out of town on an assignment due date, it is your responsibility to arrange for internet access and submit the assignment electronically or to submit it before you leave. Many of the assignments allow late submission for a short period with a significant penalty.

### **Documented Disabilities**

The University of Washington is committed to providing equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. If you believe that you have a disability and would like academic accommodations, please contact Disability Support Services at 425.352.5307, 425.352.5303 TDD, 425.352.3581 FAX, or [atdss@uw.edu](mailto:atdss@uw.edu). DSS will be happy to provide assistance. You will need to provide documentation of your disability as part of the review process.

### **Academic Honesty**

The highest standards of academic honesty will be expected in this class. Cheating and plagiarism in any of their forms are unacceptable. At the least, a grade of zero will be assigned to any work that is the product of cheating or plagiarism. Work that is assigned to you alone is to be accomplished by you alone. When formal collaboration on assignments is permitted (e.g. MP's), that fact will be made explicit. Assume that all assignments are to be individual work unless I indicate otherwise.

The official [UW Student Conduct Code](#) and an [amplification prepared](#) for UW students generally may be of use to you. Each student is responsible to read and understand that information. *It is your responsibility to clarify with me any uncertainty that may exist on this question. Do not assume that an action is acceptable; ask me to be sure.*

**Collaboration:** Some assignments (HW's) are individual, while others (MP's) are formal collaborations with your partner.. Discussion of problems with fellow students is ok, provided you do not exchange algorithms, or copy code, or give specific answers to problems. *You may look to the other students for hints and suggestions about how to approach the problem, not for solutions to it.* You may always discuss any problem with me. You are expected to subscribe to the highest standards of honesty. Failure to do this constitutes plagiarism. Plagiarism includes copying assignments in part or in total, debugging computer programs for others, verbal dissemination of algorithms, and results, or using solutions from other students, solution sets, other textbooks, etc. without crediting these sources by name. Plagiarism will not be tolerated in this class, any more than it would be in the "real world". Any student guilty of plagiarism will be subject to disciplinary action. In the "real world", you are responsible for the security of your intellectual properties. In our case, you are responsible for the security of your

source code (either on public hard disk, or on printed copies) and copies of your homework assignments. Remember to erase your work from all public hard disks, and to dispose the hard copies of your source code and assignments with care. If someone did not break any law, and has identical solutions to yours, you are necessarily a suspect of plagiarism.

Work turned in for this course may be subject to electronic checking for plagiarism.

## Grades.

The final grade will be determined numerically by averaging your scores with the following weights:

Final Exam	15%	Homework (HW's)	10%
Midterm Exam	15%		
Group Programming Assignments (MP's)	50%	In-class activities: quizzes, participation, and exercises	10%

Most grades given during the course of the term and the overall course grade will be based on a 100-pt scale. The **official decimal class grades** (0.0 - 4.0) will be determined from a weighted average of your individual grades. A weighted average of 96 will be assigned a decimal grade of 4.0, and a weighted grade of 55 will be assigned a decimal grade of 0.7. Intermediate grades will be determined by a linear relationship between these two limits. This scale represents a *minimum* decimal grade. If I judge it to be warranted, I will give higher grades than those indicated by this scale. Based on experience, the class GPA will likely fall in the range 2.7-3.1 (a “B” average).

The following table represents the official UW conversion of standard letter grades to the UW decimal grade scale and the conversion to the 100-pt scale used in this class:

	A Range		B Range			C Range			D Range		
Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	D-
Min Decimal	3.9	3.5	3.2	2.9	2.5	2.2	1.9	1.5	1.2	0.9	0.7
Min 100-pt	95	90	86	82	77	74	70	65	61	57	55

**Library Materials:** There is a link on the course home page that connects to the library reserve catalog. Many useful reference materials are to be found in one of the UW libraries on the UWS campus rather than at UWB. These can be obtained with little effort via electronic document delivery or the courier service. Make sure you know how to use this service.

### **Use of E-Mail**

You will be required to use e-mail as part of this course. Since our personal contact hours are quite limited, this will be a major avenue for communication. In addition, I will use the class e-mail list, listserv, and web page as means of broadcasting information to the class. It is assumed that class members are reading their e-mail on a daily basis. You may, of course, read your e-mail anywhere of your choosing, but it is required that you will have an active account of the form [UWNetID@u.washington.edu](mailto:UWNetID@u.washington.edu) that you check or forward daily. You can set up your account from the UW Web page. There is also a link on our course home page that takes you to UW on-line documentation that explains how to set up an account, how to send e-mail, etc.

There is a web-based U-mail form set up that allows you to send me either identified or anonymous e-mail from the browser. It can be found at URL: <https://catalysttools.washington.edu/umail/form/jackels/3026> and there are links to this Umail form on the course home page.

### **Class Listproc**

A listserv has been set up for the class. Any message or reply sent to this address is rebroadcast to the entire class. You are welcome to use this when you want to communicate with the entire class. Your UWNetID e-mail account is automatically subscribed to this listproc. The e-mail address for this is: [css341a\\_au09@u.washington.edu](mailto:css341a_au09@u.washington.edu)

Note the single underscore between "css341a" and "au09"; it is required.

### **Use of Class Discussion Board**

I have set up a computer discussion board for our use. This is an excellent medium for class discussions. Any class member can post to the bulletin board. It forms a "running" conversation that can be about the lectures, problem assignments, etc. I am using E-Post for this purpose. The bulletin board is found at:

<https://catalysttools.washington.edu/gopost/board/jackels/12156/>

A link to this bulletin board will appear on the course web site. Your access to the board will be via UWNetID. After you login to the board, you may click on "Profile" and then click on "Notifications" to select whatever notification you may prefer.

## **Electronic Submission of Assignments**

Most assignments for this course will be submitted partially or entirely electronically. Detailed instructions are found in the assignments and on the drop box sites:

- The Catalyst drop-box site for individual homeworks (HW's) is found at:  
<https://catalysttools.washington.edu/collectit/dropbox/jackels/6475>
- The Catalyst drop-box site for the machine programming problems (MP's) done with your partner is found at:  
<https://catalysttools.washington.edu/collectit/dropbox/jackels/6476>

## **Course Home Page**

My personal home page is found at the URL:  
<http://faculty.washington.edu/jackels>

Click on the entry referring to this course and you will find yourself at the course home page: <http://faculty.washington.edu/jackels/css341.a09/>

**Tentative Class Schedule (subject to change)**

<b>Week</b>	<b>DATE</b>	<b>READING</b>	<b>TOPICS</b>
<b>1</b>	Oct 1	Gaddis Chs 1-2; Lomax Ch 1	Intro, Working with VB Script
<b>2</b>	Oct 6	Gaddis: Ch 4	Flowcharting, hand tracing,
	Oct 8	Lomax Ch 3 and Ch 8 (pp 154-66)	Control Structures (decisions) and Browsers
<b>3</b>	Oct 13	Gaddis: Ch 7 & 14;	Working with Commercial Applications (Excel)
	Oct 15	Gaddis Ch 5	Control Structures (Loops)
<b>4</b>	Oct 20	Gaddis: Chs 3 & 6	Functions: Scope Rules
	Oct 22	Gaddis 8 ; Lomax, part of Ch 2	Arrays; Text files
<b>5</b>	Oct 27	Gaddis 10; Lomax, part of ch 7	Working with File Systems ; Working with Spreadsheets
	Oct 29	Gaddis Ch 11	Problem Solving with Control Structures ; Sorting with Excel
<b>6</b>	Nov 3		Simple Data Structures: Working with Word Processors
	Nov 5		<b>Mid Term Exam</b>
<b>7</b>	Nov 10	Gaddis: Ch 12	Recursions ;
	Nov 12		Working with Outlook and Email Systems
<b>8</b>	Nov 17	Lomax 231-243	Working with VB Dictionary Object ; Working with Databases
	Nov 19		Working with Databases
<b>9</b>	Nov 24	Lomax pp 379-387	Regular Expressions
	Nov 26		<b>HOLIDAY</b>
<b>10</b>	Dec 1		Working with Power Point
	Dec 3	Gaddis: Ch 9	Algorithms: Sorting + Searching
<b>11</b>	Dec 8		continued
	Dec 10		
<b>12</b>	Dec 15	{review}	<b>Final Exam</b>

Week	Date	MP's	Hwk's	Misc
1				
2	Oct 5		HW0- due	Class Survey
	Oct 10	MP0 due		
3	Oct 12		HW1 due	
	Oct 17	MP1 due		
4	Oct 19		HW 2 due	
	Oct 24	MP2 due		
5	Oct 31	MP3 due		
6	Nov 2		HW 3 due	
	Nov 7			
7	Nov 9			
	Nov 14	MP4 due		
8	Nov 16		HW 4 due	
	Nov 21			
9	Nov 23			
	Nov 28	MP5 due		
10				
	Dec 5		HW 5 due	
11				
	Dec 12	MP6 due		
12	Dec 14			

These assignments are to be turned in electronically before deadlines shown at the drop box sites.

Drop boxes have been set up at the course turn-in site:

<https://catalysttools.washington.edu/collectit/dropbox/jackels/6475> (HWs)

<https://catalysttools.washington.edu/collectit/dropbox/jackels/6476> (MPs)