Spring 2007

Rivier College
Syllabus
CS699A Professional Seminar

1. **Course number and title:** CS699A Professional Seminar

2. **Course description:** Various recent topics with the emphasis on the student's application of prior course work are considered. Students prior to the start of the semester individually select projects. Individuals design and implement moderately large software systems as the deliverable for this course. This course is divided into two parts:

   - During the first 2/3 of the class, we will be discussing (in the seminar style) the future of computing. We will take turns preparing for and leading discussions on each of the 18 articles in the Invisible Future text. Also, we will discuss topics from the Craft of Research text, which will be helpful to students in developing their research skills.
   - The last 1/3 of the class will consist of each of you presenting the results of your work to the rest of the class.

   Prerequisite: Taken just prior to the Master program completion.

3. **Course objectives:**

   Since this is the last class (or nearly the last class) you will be taking at the Rivier College, the major portion of the class will be your work, from start to finish, on a real project.

4. **Instructor's name:**   Dr. Vladimir V. Riabov, Associate Professor, MA/CS Department
   Office: STH-312; Tel: (603) 897-8613; E-mail: vriabov@rivier.edu
   WEB: http://www.rivier.edu/faculty/vriabov/index.htm

5. **Class Dates and Time:**   January 18, 2007 – May 3, 2007; Thursdays: 7:45 PM - 9:45 PM

   Office Hours: Tu: 3:30 - 5:30 PM; Wed: 4:30 - 6:30 PM; Th: 5:15 - 7:45 PM.

6. **Required textbooks:** P. J. Denning, *editor.* The Invisible Future, New York: McGraw-Hill, 2002.

   W. C. Booth, G. G. Colomb, and J. M. Williams, The Craft of Research, 2nd edition, Chicago & London, The University of Chicago Press, 2003.

7. **Recommended books:**

   - P. J. Denning and R. M. Metcalfe, *eds.* Beyond Calculation, New York: Spring-Verlag, 1997.
   - G. Booch, J. Rumbaugh, and I. Jacobson, The Unified Modeling Language User Guide, Reading, MA: Addison Wesley, 1999.
   - B. P. Douglass, Doing Hard Time: Developing Real-Time System with UML, Objects, Frameworks, and Patterns, Reading, MA: Addison Wesley, 1999.
   - L. Fertuck, System Analysis & Design with Modern Methods; Business and Educational Technologies, Wm. C. Brown Communications, Inc., 1995.
   - Roger S. Pressman, Software Engineering: A Practitioner's Approach, 4th edition, McGraw-Hill, 1997.
   - V. Kumar, Mbone: Interactive Multimedia on the Internet, New York: Macmillan, 1995.
   - P. G. Newmann, Computer-Related Risks, Reading, MA: Addison Wesley, 1995.
   - C. Stoll, Silicon Snake Oil: Second Thoughts on the Information Highway, New York, NY: Doubleday/Anchor, 1995.
   - T. Winograd, J. Bennett, L. De Young, and Bradley Hartfield (eds.), Bringing Design to Software, Reading, MA: Addison Wesley, 1996.

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- Mark Allen Weiss, <u>Algorithms, Data Structures, and Problem Solving with C++</u>, Reading, MA: Addison Wesley, 1996.
- D. A. Norman, <u>Things That Make Us Smart</u>, Reading, MA: Addison-Wesley, 1993.
- H. Rheingold, <u>The Virtual Community</u>, Reading, MA: Addison Wesley, 1993.
- D. Gelernter, <u>Mirror Worlds</u>, New York: Free Press, 1991.
- D. B. Lenat, <u>Building Large Knowledge-Based Systems</u>, Reading, MA: Addison Wesley, 1990.
- M. Rothschild, <u>Bionomics: Economy as Ecosystem</u>, New York, NY: Henry Holt & Co., 1990.
- E. A. Feigenbaum and P. McCorduck, <u>The Fifth Generation</u>, Reading, MA: Addison Wesley, 1983.
- H. L. Dreyfus, <u>What Computers Can't Do</u>, (1st ed.), New York: Harper & Row, 1972.

8. Classroom Policies:

a) <u>Attendance</u>: Active participation requires attendance and arrival to class in time to be prepared for work when the class period begins. You are expected to attend all classes. Much of the learning will take place in classroom activities that cannot be duplicated easily outside of class. If you miss class, you are responsible for doing all classroom activities you missed, getting the notes from a classmate, and turning in all work on the day it is due. If you miss more than two classes, your absences will be reported to the registrar and you must meet with the professor to discuss the advisability of your remaining in the course for the remainder of the semester. Students who miss three classes may be withdrawn from the course and receive disciplinary action from the college (see *Rivier College Attendance Policy* in Appendix 1). If you anticipate that job-related duties or prior commitments will cause several absences, please discuss the matter with the instructor outside of class. Working online is permitted.

b) <u>Honesty policy:</u> Plagiarism and cheating are serious breaches of academic honesty. In general, plagiarism is defined as the presentation of someone else's work in whatever form: copyrighted material, notes, film, art work, reports, statistics, bibliographies, and the like, as one's own, and failing to acknowledge the true source. Quoting word-for-word, or almost so, or using the argumentation of another source without acknowledging this dependence also constitutes plagiarism. Cheating is defined as the giving or attempting to give or to receive unauthorized information or assistance during an examination or in completing an assigned project. Submission of a single work for two separate courses without the permission of the instructors involved is also a form of cheating.

   If students are unsure whether a specific course of action would constitute plagiarism or cheating, they should consult with their instructor in advance.

   Penalties for plagiarism and cheating vary with the degree of the offense and may take the form of the following academic sanctions:
   - the grade of F for the work in question;
   - the grade of F for the course;
   - notification of the department chair and/or Academic Dean of the College of the misconduct of the student;
   - recommendations that the student be suspended or dismissed from the College.

c) <u>Home Assignments</u>: Prior reading of the assigned articles from the <u>Invisible Future</u> and <u>Craft of Research</u> books. Each student will be asked to prepare a review of a major article from an ACM/IEEE publication or journals. The student's article would be distributed to the class a couple weeks before the scheduled discussion so that all students could read it.

d) <u>Computer Project</u> (individual project): The students each should submit 5-10 page project proposals the *third* week of class, which, once accepted, they work on independently, mostly outside of class (with the instructor's help as necessary). The *Initial Report* must reflect preliminary research and serious thought about your topic. Your ***final*** write-up should be no longer than 20 typewritten, double-spaced pages. It should contain an abstract, the problem description, programming algorithm (data structures used, what the program does, how it does it, and how to use the program). Be sure that your code has sufficient comments. Please include a floppy disk (or CD-ROM) containing your program and the instructions/commands to run it. The last 1/3 of the semester will be the students' oral presentations of their projects. The Final Project is due on **May 3, 2007**.

e) <u>NO EXAMS</u> are scheduled.

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9. Americans With Disabilities Act (Ada):

Rivier College wants to provide reasonable accommodations to students with disabilities. To accomplish this goal effectively and to ensure the best use of our resources, timely notice of a disability must be provided to the Office of Special Services for verification and for evaluation of available options. Any student whose disabilities fall within ADA should inform the instructor within the first two weeks of the term of any special needs or equipment necessary to accomplish the requirements for the course. To obtain current information on this procedure, contact the Office of Special Services at telephone extension 8497.

10. 24/7 Blackboard Technical Support:

All students have the ability to access Blackboard technical support on a 24/7 basis. Students have many different options for obtaining support, including phone, online technical library, or Live Chat with a customer service representative. The support can be accessed by following this link:
http://supportcenteronline.com/ics/support/default.asp?deptID=3250

11. Evaluation Mechanism:

The grade is primarily made up of your performance on your project.
Approximate weightings are as follows:

Classroom (Chapter) Discussion	10%
Leading (Article) Discussion	10%
Project	80% (including 16% - Project Presentation & 64% - Paper)

12. Due Dates:

Initial Project Proposal:	February 1, 2007
Initial Report:	March 22, 2007
Updated Project Report (*optional*)	April 12, 2007
Final Project due:	May 3, 2007

13. Topic Outline:

SESSION	TOPIC	READING	Discussion Leader
		IF = "The Invisible Future" text	
		R = "The Craft of Research" text	
		*BC = "Beyond Calculations" text**	
1 (01/18)	*The Tide, Not the Waves (by Dijkstra)**	*Ch. 4 (BC)**	Vlad Riabov
	*How to Think About Trends (by Hamming)**	*Ch. 5 (BC)**	Vlad Riabov
	Research & Readers	Chs. 1, 2 (R)	Vlad Riabov
	Revolution in Embedded System		Vlad Riabov
2 (01/25)	Science's Endless Golden Age (by *Tyson*)	Ch. 1 (IF), pp. 1-14	
	A Compass for Computing's Future (by *Colwell*)	Ch. 2 (IF), pp. 15-26	
	Topics-Questions, Questions-Problems	Chs. 3, 4 (R)	Vlad Riabov
	Challenges in Embedded System Design		Vlad Riabov
3 (02/01)	Engineering the Ocean (by *McNutt*)	Ch. 3 (IF), pp. 27-42	
	How Biology Became an IS (by *Baltimore*)	Ch. 4 (IF), pp.43-56	
	Questions & Sources	Chs. 5, 6 (R)	Vlad Riabov
	Software Development Life Cycles (Modern Approach)		Vlad Riabov
	[INITIAL PROJECT PROPOSAL DUE]		

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SESSION	**TOPIC**	**READING**	**Discussion Leader**
4 (02/08)	Flesh and Machines (by *Brooks*)	Ch. 5 (IF), pp. 57-64	*Student*
	... Automated Music Composer (by *Hofstadter*)	Ch. 6 (IF), pp. 65-86	*Student*
	Arguments, Claims, and Evidence	Chs. 7, 8 (R)	Vlad Riabov
	Functional Specifications		Vlad Riabov
5 (02/15)	Free Market Electrical Network Mgmt (by *Jackson*)	Ch. 7 (IF), pp. 87-108	*Student*
	Computer Revolution Hasn't Happened Yet (by *Kay*)	Ch. 8 (IF), pp. 109-116	*Student*
	Warrants & Qualifications	Chs. 9, 10 (R)	Reading
	Modern System Design Approaches		Vlad Riabov
6 (02/22)	Don't Count Society Out (by *Brown & Duguid*)	Ch. 9 (IF), pp. 117-144	*Student*
	Less Is More ... (by *Buxton*)	Ch. 10 (IF), pp. 145-180	*Student*
	Drafting & Communicating Evidence	Chs. 11, 12 (R)	Reading
	Object-Oriented Design Issues, Unified Modeling Language		Vlad Riabov
7 (03/01)	Human-Centered Systems (by *Dertouzos*)	Ch. 11 (IF), pp. 181-192	*Student*
	Fine Living in Virtual Reality (by *Kurzweil*)	Ch. 12 (IF), pp. 193-216	*Student*
	Revising & Arguments	Ch. 13 (R)	Reading
	Rhapsody and CASE Design Tools		Vlad Riabov
8 (03/08)	**NO CLASSES (Spring Vacation)**		
9 (03/15)	Life After Internet (by *Metcalfe*)	Ch. 13 (IF), pp. 217-226	*Student*
	One Is Glad to Be of Service (by *Cerf*)	Ch. 14 (IF), pp. 227-234	*Student*
	Revising Style	Ch. 14 (R)	Vlad Riabov
	Rational Suite & ROPES tools		Vlad Riabov
10 (03/22)	Ambient Intelligence (by *Aarts et al.*)	Ch. 15 (IF), pp. 235-250	**[INITIAL REPORT]**
	... Environments Become Smart (by *Sterling*)	Ch. 16 (IF), pp. 251-276	*Students*
	Introductions	Ch. 15 (R)	Vlad Riabov
	Testing Strategies & Tools, McCabe IQ Tool		Vlad Riabov
11 (03/29)	Somatics in Cyberspace (by *Heckler*)	Ch. 17 (IF), pp. 277-294	*Student*
	When IT Becomes a Profession (by *Denning*)	Ch. 18 (IF), pp. 295-325	*Student*
	Research & Ethics	Part 5 (R)	Vlad Riabov
	Control Management issues, ClearCase Tool		Vlad Riabov
12 (04/05)	PREPARATION TO PROJECT PRESENTATIONS		
13 (04/12)	**PROJECT PRESENTATIONS [Updated Project Report (optional)]**		
14 (04/19)	**PROJECT PRESENTATIONS**		
15 (04/26)	**PROJECT PRESENTATIONS**		
16 (05/03)	**PROJECT PRESENTATIONS [FINAL PROJECT DUE] [FINAL PROJECT DUE]**		

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APPENDIX 1: <u>ATTENDANCE POLICY STATEMENT</u>:

The classroom is the heart of the educational experience at Rivier College because it provides, uniquely, a formal setting for the important exchanges among faculty and students. Regular and punctual attendance at all classes, essential for maximum academic achievement, is a major responsibility of Rivier College students. Failure to attend and contribute to the classroom environment significantly and demonstrably reduces the quality of the educational experience for everyone in the classroom. As a result, absences almost always impact the quality of performance.

As part of its commitment to a quality educational experience for all members of the Rivier community, the College formally requires specific attendance policies to be developed by its professors and reviewed by the Division Head and Academic Dean. Any attendance policy used by an individual professor as a criterion for evaluation must be specified in the course syllabus and presented to students during the first week of classes. These policies can be found in respective course syllabi, and may include reasonable penalties and sanctions for excessive absences.

In the event of prolonged illness, accident, or similar emergency, it is the responsibility of the student to notify both the professor and the Office of the Academic Dean. Students must remember that it is always their responsibility to make up the work they may have missed during an absence from class. Students are directed to confer with their professors when their absences jeopardize satisfactory progress. Whenever a professor is absent without notification, students are expected to wait fifteen minutes before leaving and to sign an Attendance List, which a class member delivers to the Office of the Academic Dean.

Instructors are required to record attendance and alert the Registrar when a student fails to attend the equivalent of two weeks of courses (2 absences for a course meeting once a week, 4 absences for a course meeting twice a week, 6 absences for a course meeting three times a week). The student will then be alerted that he/she is in danger of falling under the 'habitual non-attendance policy" (see below).

<u>Habitual Non-Attendance Policy</u>:

Habitual non-attendance is defined as an absence in any course (for any reason whatsoever) equating to three full weeks of missed class sessions (3 absences for a course meeting once a week, 6 absences for a course meeting twice a week, 9 absences for a course meeting three times a week).

It is the responsibility of the student to notify the College of any intention to withdraw from a course or withdraw from the College. The College will attempt to resolve the issue of habitual non-attendance with the student; however, the College reserves the right to withdraw students who are no longer attending classes. Habitual non-attendance in one or more classes may result in administrative withdrawal from the class or classes affected, withdrawal from the College or, in cases with extenuating circumstances, an administrative leave of absence. In such cases a grade of W of NF will be assigned to the classes affected according to the appropriate date published in the academic calendar.

Students who have attended no class sessions of a course or courses from which they are registered by the end of the drop/add period will be dropped from each class not attended. If a student never attended any courses during the drop/add period, the student will be withdrawn from his/her full schedule of courses.