Syllabus

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Never underestimate the power of the syllabus! It is your guide for how to excel in this class. Read it carefully and review it every time you have a question about the course requirements, policies, and assessment. It's a living story I keep writing every semester from my students' stories about learning, college experience, and how the academic time fits into our lives, students and instructors alike.

Please email me if you notice any inconsistency or ambiguity. The syllabus is a shared contract among all of us in this class, and has the purpose of implementing the class teaching and learning goals.

Course Information
Name: CS250 Evening and Online Data Structures
Semester: Spring 2007
Time and Location: Tuesday, 5:30 to 7:30 PM, STH136 Computer Lab
Instructor
  - Mihaela Sabin, Ph.D.
  - Associate Professor of Computer Science
  - Office: Regis 305
  - Office hours:
    - Regis Annex, Room 305 and Conference Room
      - Tuesday: 1:00 to 2:00 PM
      - Thursday: 1:00 to 3:00 PM
      - Monday and Wednesday by appointment
    - STH135 Computer Lab
      - Tuesday 10:45 to 11:45 AM, and 7:30 to 8:30 PM
    - STH136 Computer Lab
      - Tuesday 7:30 to 8:30 PM

Course Description
An introduction to abstract data types (ADTs) and their implementation using object-oriented programming. Topics include basic ADTs: lists, stacks, and queues. Emphasis on ADTs formal definitions and their object-oriented design and implementation, as well as their application to solving problems.
Prerequisites: CS180/CS181 Programming Fundamentals I/II with Java, or equivalent with the instructor's permission.

Objectives: Upon completion of this course, students should be able to:
  - Understand the concept of abstract data type (ADT)
Identify suitable data structures and Java classes to implement ADTs.
Understand fundamental ADTs, their implementations and relevant applications.

Course Overview: The course will cover
- Overview of object orientation
- Collections
- Recursion
- Linked Structures
- Stacks and Queues
- Lists
- Trees
- Hashing
- Java Collection Framework

Textbook: Java Software Structures: Designing and Using Data Structures
John Lewis and Joseph Case
Addison Wesley, 2nd edition, 2005


Schedule Outline
The class schedule lists class activities, assigned homework and readings, in-class examinations, and portfolio submissions:
- Assigned reading (R<class ID>) and assigned homework (H<class ID>)
- In class labs (L<class ID>)
- Tests - InClassT# (IC-T#), TakeHomeT# (TH-T#), and FE (final exam)
- Portfolio submissions (P#)
- <class ID> is a class ID that stands for the number of the week in the semester. It corresponds to course material covered or class activity conducted in or scheduled in for particular class.

For example:
- \textbf{L2} is a lab activity that takes place in the second week of school.
- \textbf{H10} is a homework that covers class material discussed in the 10\textsuperscript{th} week. It is assigned the class of that week and due next class.
- \textbf{R6} covers material to be discussed in the 6\textsuperscript{th} week and assigned the class before, of the 5\textsuperscript{th} week.

# is a test and portfolio submission number. For example:
- \textbf{P2} is the 2\textsuperscript{nd} submission of the course portfolio assigned the class where it is listed, and due next class.
- \textbf{T2} is the 3\textsuperscript{rd} test given in the course.

The schedule web page on the Blackboard course web site is organized by weeks. Weekly postings include class agendas for each class (A<class ID>). A class agenda lists the reading and homework due that class, feedback to graded assignments, class topics and lab assignments, and reading and homework assignments due next class.

Check the class schedule, announcements, and discussion board in Blackboard and your Rivier email prior to each class.
Check your own class notes for additional information regarding next class. There are occasions when the web site might not be accessible or might not have the latest updates announced in class. If you have questions, email me at msabin@rivier.edu. I'm always one email away.

A copy of the schedule is included at the end of this document.

**Course Requirements and Policies**

1. **Participation**
2. **Reading Assignments**
3. **Homework Assignments**
4. **Laboratory Projects**
5. **Examinations**
6. **Portfolio**
7. **Academic Honesty and Collaboration**
8. **Attendance**
9. **Late Assignments, Make-Up Exams, Missed Classes**

This course emphasizes participation and learning through direct engagement, in and outside the class, with your peers and the course instructor.

This course has a very strong practical component that requires daily practice of programming skills and application of concepts. Reading and homework assignments are assigned every class and are due next class. Homework assignments cover the material discuss in the class when they are assigned. Reading assignments cover the new material that will be discussed the class following the class when they are assigned.

Students work on lab projects that are assigned and conducted in class. You are expected to finish these projects in class or before next class.

There are two tests and one final exam.

Participation in class becomes tangible, sharable, and transferable through the course portfolio. Students develop and maintain course portfolios that collect all the work produced by students and instructor in this course. There are three submissions of the course portfolio, prior to the class when an examination is scheduled.

Missed classes contradict the strong participatory character of the class. Therefore, class attendance is not optional.

The policy for late assignments, missed labs, and make-up exams is very strict and applies only in exceptional cases of student illness, accident, or emergencies that are properly and PROMPTLY documented.

1. Participation [priceless]
   Participation is essential to this course. Students participate in class discussions that are conducted in class (for the hybrid course) and outside the scheduled on-campus class (for both hybrid and online classes).
The Blackboard communication tools are designed to monitor and reflect all dialog generated by the course material presented in class, and reading and homework assigned each class. These tools are:

- Announcements
- Discussion Board
- Drop box
- Email

You are required to check your Rivier email daily, and necessarily PRIOR TO each class. Course emails should be managed in your Rivier email account.

Create a subfolder called **CS250** in your Rivier email **Inbox**. Save all course-related emails in it.

**Note for the hybrid course**

You can use your Rivier email to email yourself work you finished at home. This way you'll have it available in the lab when you come to class. Another efficient way to transfer and synchronize work that you have in your Rivier computer account and home computer is to use a USB memory key.

Check regularly that all the work you do on your machine gets saved to the network drive.

Install the VPN client on your home machine to have direct access to your Rivier network drive, then map the Rivier network drive to a logical drive on your machine. Make sure you know the path of your Rivier network drive. It's usually `\pds\students\` followed by the **first initial of your login name**, followed by `\` (backslash), and followed by your **login name**:

```
\pds\students\<first-initial-of-first-name>\<login-name>
```

The VPN client works only if you have a broadband Internet connection (cable or DSL). Download the VPN client from the IT web site. Note that your user name when prompted to login is RIVNET/username.

2. **Reading Assignments** [priceless]

Are essential to:

- Understand and learn the material presented in class
- Complete the class projects
- Work on the class lab projects
- Do well on tests.

Reading assignments are assigned every class and cover the material to be presented in the next class. Details on each class reading assignment are in the class agenda in the corresponding **Week #** folders on the **Schedule** web page.

3. **Homework Assignments** [44 points]

There is a total of **12** homework assignments. They are graded as follows:

- 8 assignments are 2 points each, and
- 4 assignments (marked with an * after the class-ID) are 5 points each.

The scheduling of the homework assignments over the entire semester is in the course schedule document on the **Schedule** web page. Details on homework assignments are in the class agendas in the corresponding **Week #** folders on the **Schedule** web page.
IMPORTANT! Always check your personal class notes and Rivier email to make sure that you have the latest information about homework. This is absolutely necessary when the course web site is temporarily down or you don’t have access to it.

Although collaboration is allowed to discuss assignment specifications, language constructs, test data, Java library features, and conceptual aspects of the solution design, the Java programs and program documentation you submit must be entirely your own work.

**Deadline for Homework Assignments**
Homework assignments are given every class and are due the following class. **No late submissions are accepted**, unless you comply with the “Late Assignment, Make-Up Exams, and Missed Classes” policy.

If you want to receive prompt feedback, start early on writing the program, participate in class and online communication, and always submit your assignment on time. If your program does not compile, list the compilation errors in the documentation file.

For each homework assignment you have to submit a homework write-up or report in the Blackboard digital drop box. The reports are submitted PRIOR to the beginning of the class. See Guidelines document, in particular the Assignment Reports section, and Digital Drop Box Uploads and Downloads item for more information on the Guidelines web page.

4. **Laboratory Assignments [priceless]**
All classes include lab activities that are designed and implemented individually or by teams.

Lab projects are not graded. They do contribute though to the credit students earn for the portfolios they develop during the semester. They are also essential to student performance on tests and homework assignments.

5. **Examinations [50 points]**
There are two tests (15 points each) and a final examination (20 points).

All course examinations are open texts, notes, and Web courseware. No collaboration is allowed while taking these examinations, that includes email or other Internet-enabled exchanges among students. Questions are addressed to the instructor and will be answered for the benefit of the entire class.

T1 and T2 have two parts:
- A remote-class test, which is taken at home (or in the lab, if you prefer) and due by midnight the same day.
- A take-home, which involves programming and requires that a take-home report is prepared and submitted prior to the next class.

The final exam is taken remotely (at home or in the lab, if you prefer). It does not have any programming homework part.

The examinations schedule is in the course schedule document on the Schedule web page.
6. **Portfolio [6 points]**
You are expected to maintain a course portfolio in which you assemble all the work produced by you during this course. The portfolio becomes an indispensable resource for your learning of the subject matter. It is also a means of expressing yourself professionally in the field of computing: materials are timely filed, well organized for easy access, and presented in a high-quality format.

The student **portfolio** is maintained in electronic format. Create a folder called **CS250** in your Rivier computer account on the network drive. The folder has the following subfolders: **HOMEWORK, LABS, TESTS**. When you work on a Java project that is a homework assignment or a lab, the folder that contains all the Java files and the assignment report has the name **H3** or **L5**.

You earn **2 points** for partial portfolio submissions when you take a test, and a final **1 point** at the time of the final examination. Zipped portfolios are submitted in the digital drop box prior to the class when an examination is taken. See **Guidelines** document and the **Electronic Portfolio and Digital Drop Box Uploads and Downloads** items for more information on the **Guidelines** web page.

7. **Academic Honesty and Collaboration [priceless]**
Collaboration is encouraged and supported in the classroom through lab activities and discussion, and outside the classroom via emails, course bulletin board posts, and interaction among students to understand an assignment description, course concepts and their application, programming features, debugging errors, outcome requirements. However, the Java programs, program documentation, homework write-ups you submit must be entirely your own work.

You are expected to abide by the College policy on **Academic Honesty** (see the statement at the end of this document).

8. **Attendance [priceless]**

**Note for the hybrid course**
Attendance is taken every class. Students are responsible to attend all classes. Although there is no penalty for absences in this course, failure to attend impacts negatively the quality of your performance and the quality of our class as a whole. You are expected to abide by the College policy on attendance. See the **Statement on Attendance** at the end of this document.

Reading and homework assignments are due every class. You develop lab projects every class. Except for extraordinary situations you should not miss the work due every class. In one sentence: attendance, whether on-campus or online, is not optional. It is really, truly (I cannot emphasize it enough!) priceless!

9. **Late Assignments, Make-Up Exams, Missed Classes [not a choice!]**
Policies for late assignments and make-up exams are very strict and they apply only in exceptional cases of student illness, accident, or emergencies that are properly documented. Paraphrasing the attendance policy, on-time submission of assignments is not an option.

A late submission may be granted ONLY IF you:

- Let me know **ahead of time** that the deadline will be missed.
- Provide proof or explanation that serious medical, personal, or family circumstances prevented you from meeting the deadline.
- **A minimal submission is presented at the due date.** For example, a report template with the text of the assigned work and the regular section headings.

There is no penalty for late submissions IF AND ONLY IF you comply with the late submission policy. If you omit to inform me about a missing deadline and do not present a minimal submission, you receive no credit for your assignment. Granted late submissions are due the following class.

It is your responsibility to make arrangements with me for make-up exams before the class that follows the missed class.

**Note for the hybrid course**
If you miss a class, it is your responsibility to get informed about class presentation and activities. Use the web site and contact your peers. I will meet with you to answer your questions only after you have prepared for and got informed about the missed class.

**Grading**
Final grades are broken up as follows:
- Homework assignments:
  - 8 submissions x 3 points each = 24 points
  - 4 submissions x 5 points each = 20 points
- Tests: 2 tests x 15 points each = 30 points
- Portfolio: 6 points
- Final Exam: 20 points

**Class Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Due Reading, Lab Activity, Test Taking</th>
<th>Next Class Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 16</td>
<td><strong>R1</strong> Ch 2 Object-Oriented Design: 2.1 to 2.9&lt;br&gt;L1: Programming project 2.1 (page 79). From problem statement to full design, implementation, testing, documentation, and submission.</td>
<td>H1 R2</td>
</tr>
<tr>
<td>2</td>
<td>Jan 23</td>
<td><strong>R2</strong> Ch 2 Object-Oriented Design: 2.10 to 2.17&lt;br&gt;L2: Programming project 2.12. Modify programming project 2.1 such that it catches and handles exceptions.</td>
<td>H2 R3</td>
</tr>
<tr>
<td>3</td>
<td>Jan 30</td>
<td><strong>R3</strong> Ch 3 Collections: 3.1 to 3.6&lt;br&gt;L3: SetADT&lt;T&gt; interface and ArraySet&lt;T&gt; class implementations.</td>
<td>H3 R4</td>
</tr>
<tr>
<td>4</td>
<td>Feb 6</td>
<td><strong>R4</strong> Ch 4 Linked Structures: 4.1 to 4.5&lt;br&gt;L4: LinkedSet&lt;T&gt; class implementation.</td>
<td>H4 R5</td>
</tr>
<tr>
<td>5</td>
<td>Feb 13</td>
<td><strong>R5</strong> Ch 6 Stacks: 6.1, 6.3 to 6.7&lt;br&gt;L5: StackADT&lt;T&gt; interface and its implementations.</td>
<td>H5 P1 R6</td>
</tr>
<tr>
<td>Date</td>
<td>Assignment</td>
<td>Description</td>
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</table>
| Feb 20 | Prepare and submit first installment of class portfolio **P1**. | Test 1 – RemoteClassT1 (RC-T1)  
**Independent Reading:** Ch 7 Queues: 7.1, 7.5, 7.6, 7.8.  
*No lab* |
| Feb 27 | R7  
Ch 8 Lists: 8.1, 8.2, 8.4 to 8.6  
**L7:** ListADT<T> interface and its implementations. | TakeHomeT1 (TH-T1) R7 |
| Mar 13 | R9  
Ch 12 Trees: 12.1 to 12.4  
**L9:** Preliminary experimentation with linked-based implementation of the BinaryTree ADT. | |
| Mar 20 | R10  
Ch 13 Binary Search Trees: 13.1 to 13.3, 13.7  
Ch 14 Ancestor Tree Case Study: 14.1 to 14.3  
**L8:** Ancestor tree application. | |
| Mar 27 | R11  
Review  
Ch 7 Queues: 7.1 and 7.5  
Ch 8 Lists: 8.1  
Ch 2 Trees: 12.3 and 12.4  
**L11:** Add queue and unordered list files to H11* project. Develop numDescendents( ) in DescendentNode. Develop levelOrderedReader in DescendentTree. Develop addElement( ) based on the helper method findNode().  
Prepare and submit second installment of class portfolio **P2**. | |
| Apr 3 | Test 2 – RemoteClassT2 (RC-T3)  
**Independent Reading** | TakeHomeT2 (TH-T2) R12 |
| Apr 10 | R13  
Ch 10 Recursion: 10.1 to 10.4  
**L13:** Add to LinkedBinaryTree class new methods that are implemented recursively: leaves( ), nodes( ), height( ). | |
| Apr 17 | R14  
Ch Ch 17 Hashing: 17.1 to 17.5  
**L14:** Demonstrate the application of Java API hash map class. | |
| Apr 26 | R15  
Review Java Collections Framework interfaces and classes:  
· List interface and ArrayList and LinkedList classes  
· Set interface and HashSet and TreeSet classes | |
Map interface and HashMap and HashTree classes
Iterator and ListIterator interfaces

**L15:** Modify programming project H14* to implement the system described at 17.12.
Prepare and submit third installment of class portfolio **P3.**

| 16  | May 1 | Final Exam (FE) |

**College Policies**

- American with Disabilities
- Academic Honesty
- Statement on Attendance
- 24/7 Blackboard Technical Support

**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, the College expects students to provide timely notice of a disability 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.

**Academic Honesty**

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.

**Statement on Attendance**

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).

Habitual Non-Attendance Policy

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 or 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.

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