Course Summary
This course will provide more advanced instruction in programming in Java, with an emphasis on Abstract Data Types, and the data structures that they represent. These data structures, and the algorithms that go with them, make up the standard toolkit for programmers regardless of language and application. Expect to do a significant amount of programming, as well as paper and pencil exercises.

Objectives
By the end of this class, you will be able to...

• Simulate and explain standard algorithms and data structures.
• Recognize appropriate and inappropriate choices of algorithms to model specific situations.
• Justify your choice of algorithm and data structure based on stated criteria such as time and space efficiency, and explain situations or special cases in which an algorithm is likely to fail to meet those criteria.
• Evaluate novel algorithms using standard techniques.
• Develop and explain appropriate abstract models to apply to specific real-world situations.
• Develop increasingly complex solutions from realistic specifications.
• Develop and execute plans to complete complex programs within the allotted time and manage your time to solve the problems successfully.

Professor: Dr. Ellen Walker
Office: Colton 112; 569-5250
Office Hours
Drop in anytime my door is open. (During A/C season it will only be open a little). I try to be on campus most days from 10am - 4pm (or later). In addition to this class, I have an afternoon class MWF 1:15-2:35. If you need to guarantee that I’m available at a particular time, talk to me in advance, or email for an appointment.

E-mail: walkerel@hiram.edu (best way to contact me)

TAs:
Joel Fichter fichterjl@hiram.edu

Required Text:

Grading:
Programs (4) 40%
Labs 20%
Tests (2, in-class) 25%
Final Exam 15%

Unless otherwise specified, 90-100 is an A, 80-89 is a B, 70-79 is a C, 60-69 is a D, <60 is an F.

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**Late Assignment / Makeup Policy**

Unless you make prior arrangements with the instructor or have a medical excuse, if you miss an exam, you will receive an F for that exam.

Following the policy that has been used in this class over the last few years, there will be no late penalty for individual programs. The purpose of this policy is to help you learn to pace yourself over the semester for longer projects, such as IRC’s.

Suggested due dates for the 4 programs are:

- Program 1 Sept. 18
- Program 2 Oct 10
- Program 3 Oct 31
- Program 4 Nov 18

There will be a 5% reward for any programs submitted before midnight (11:59:59pm) on these due dates. In addition, programs that are submitted on time will be graded and returned to you. You may then fix and resubmit these programs for up to 50% of the lost points. (Bonus points will not be applied to resubmitted programs).

**There will be two firm deadlines for this course. Programs 1 and 2 must be submitted no later than midnight, October 17. (Resubmits are allowed up until the second deadline). No programs will be accepted after midnight, Tuesday November 22, for any reason.**

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**Academic Honesty Policy**

There are many forms of academic dishonesty, including plagiarism, the giving or receiving of help in any form on an examination, the sale or purchase of papers and test materials, the abuse of computer privileges and regulations, the misuse or abuse of online or library resources, and any other action which debases the soundness of the educational process. Any student who violates the integrity of the academic process will be subject to punishment, including possible dismissal from the College.

Hiram College believes that the development of intellectual honesty is at the heart of a college education. The process of education is severely compromised if we cannot depend on the academic integrity of each member of the community. Moreover, the principles of academic honesty are aligned closely with the principles of good scholarship and research, principles of
critical thinking and reasoning, and the standards of professional ethics. Thus, students who fail to practice academic honesty not only risk losing the trust of the academic community, they also fail to develop the most essential skills and abilities that characterize a college graduate. Faculty members, librarians and staff are expected to report all instances of academic dishonesty to the Associate Dean of the College, who will provide advice on an appropriate action.

You cannot learn to program without practice. Therefore, even though in the “real world” programmers collaborate often, in this class, all programs (unless otherwise specified) must be done individually. Sharing of code or algorithms (even if not the entire assignment) is considered collaboration and is NOT PERMITTED.

Exams are basically closed book, but you may have a 1-page (8.5 x 11, single-sided) crib sheet. This crib sheet will turned in with the exam, and crib sheets must be your own work. You MAY NOT share crib sheets or otherwise work together on exams. The penalty for cheating on programs or exams will be failure of the course.

Grade Appeals

Academic performance is to be judged solely by individual faculty members. Grades are not subject to alteration based on the amount of effort exerted by, or past performance of, a student. Faculty are expected to provide performance criteria (such as attendance policies, deadlines, assignment expectations, etc.) as part of course syllabi or distributed assignments, but assessment of student performance in meeting said criteria is for the individual faculty member to determine. If a student believes that criteria were ignored, or that work submitted was not included, the student should consult the “Student Academic Responsibilities and Performance” section of the Hiram College Catalog at home.hiram.edu. Therein is provided the process for grade appeals. Please note that all grade appeals reside wholly with the professor alone until the official posting of grades by the Registrar.

Non-Discrimination Policy

Hiram College is committed to equality of opportunity and does not discriminate in its educational and admission policies, scholarship and loan programs, and athletic and other school-administered programs on the basis of race, color, national origin, religion, gender, sexual orientation, age, or disability. The College will not tolerate harassment, prejudice, abuse, or discrimination by or of any of its students, faculty, or staff.

Communication with Parents

Hiram College encourages students to speak directly with faculty regarding course content and performance. Students are also encouraged to speak with their parent(s), particularly if the student remains dependent on parent(s) for financial support. Faculty may choose to speak with parents, but generally, faculty will require a written FERPA waiver to be signed by the student before speaking with a student’s parent. FERPA waivers may be found at the Registrar’s Office in Teachout-Price, or online at http://www.hiram.edu/current/offices/registrar/ferpa2.html.
Disability Support Services for Students with Special Needs

To arrange for support services, a student must submit appropriate, current, detailed documentation to the Director of Counseling, Health and Disability Services (CHDS) together with the completed online service request form http://www.hiram.edu/newstudent/docs/disability_self_disclosure11.pdf. After verification and with the student’s consent, the Director of CHDS will notify the student’s faculty of the appropriate accommodation services. Faculty are not permitted to make accommodations without the authorization of the Director of CHDS. Hiram College adheres to Section 504 of the Rehabilitation Act to provide requested services for disabled students as specified by the requirements contained in the Americans with Disabilities Act (ADA) policy guidelines. The Director CHDS is located in the Julia Church Health Center (330-569-5952) P.O. Box 67, Hiram OH 44234.

Detailed Schedule

(SUBJECT TO CHANGE!!)

<table>
<thead>
<tr>
<th>Wk</th>
<th>Dates</th>
<th>Material Covered (chapter)</th>
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<tbody>
<tr>
<td>1</td>
<td>Aug 29 – Sep 2</td>
<td>Intro, Software Engineering, Design [Notes only]</td>
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<tr>
<td>2</td>
<td>Sep 7-9</td>
<td>Testing &amp; Debugging (D.1-D.2), Exceptions (1.6)</td>
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<td>No class Sept. 5</td>
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<td>3</td>
<td>Sep 12-16</td>
<td>Inheritance &amp; Hierarchies (1); Efficiency (2); Lists &amp; Collections (2)</td>
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<td>No class Sept. 14</td>
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<td>4</td>
<td>Sep 19-23</td>
<td>Lists &amp; Collections (2)</td>
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<td>No lab Sept. 20 (Campus Day)</td>
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<td>5</td>
<td>Sep 26-30</td>
<td>Stacks (3)</td>
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<td>6</td>
<td>Oct 3-7</td>
<td>Queues (4) TEST Oct 3</td>
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<td>7</td>
<td>Oct 10-12</td>
<td>Recursion (5) No class Oct 14 (Fall Weekend)</td>
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<td>8</td>
<td>Oct 17-21</td>
<td>Trees (6)</td>
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<td>9</td>
<td>OCT 31 – Nov 4</td>
<td>Trees (6, 9)</td>
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<tr>
<td>10</td>
<td>Nov 1-5</td>
<td>Sets &amp; Maps (7)</td>
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<td>11</td>
<td>Nov 7-11</td>
<td>TEST Nov 9 No class Nov 11</td>
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<tr>
<td>12</td>
<td>Nov 14-18</td>
<td>Graphs (10), Additional topics if time, Review</td>
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<tr>
<td>F</td>
<td>Nov 21, 12 noon</td>
<td>Final Exam</td>
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