

**10:30-11:20 am** in room 1302 MTW + **team/online 40%**, Item **0743**, Section **Y1-hybrid**, 5 credits

**Prof.:** Robert Shields; **Email:** rshields at shoreline dot edu; **Tel:** (206) 546-4773; **Web:** http:// [shoreline.edu/rshields](http://shoreline.edu/rshields)

**Office** 1420 - **Hours:** see my web site or by appointment

**Course goals:** Develop concepts and techniques for solving problems by using object-oriented computer programming. Major topics include planning, algorithms & control structures; classes & objects; methods & data types; documentation & style; abstraction, arrays & inheritance or interfaces; introduction to exceptions, sorting and searching, testing.

**Prerequisites:** Math 141 or 111 (pre-Calculus) with a grade of 2.0 or better, or instructor's permission. Prior programming experience strongly recommended.

**Required Text:** Building Java Programs, 2<sup>nd</sup> ed. Stuart Reges & Marty Stepp, Pearson Education/Addison Wesley, 2008, ISBN 0-321-38283-8. Plus online materials. Plan to read assigned chapters **at least 3 times**.

**Required supplies:** (a) USB drive (b) a 2nd USB drive for backups (c) #2Pencil

**Start here:** Check [shoreline.edu/rshields](http://shoreline.edu/rshields) for revisions to our schedule of work, due dates and style requirements.

**Read** about important matters such as grades and participation in the **separate document** of additional syllabus details; they are included by this reference. Start reading the assigned material early (perhaps today).

Welcome to the wonderful world of problem solving. The coverage and content of this course closely follow the CSE 142 class taught at UWA and it automatically transfers as equivalent. It should be acceptable to other universities. To master the material in this class, study all assigned readings and complete all assignments and exercises. Solo activities require you to demonstrate your mastery of material and must be done individually. Work assigned to a team must be completed and turned with full names for all team members to receive full credit. Part of the value of team activities comes from working together, at the same time and place.

**Grades:** No Late work will be accepted or graded. Your lowest SP score will be dropped

Activity	Expect	Style	Weight of total points
Solo Exams	2-3	Objective and hands-on parts. See the schedule for dates	~50%
Solo/Programming Projects (SP)	9-12	Complete solutions: design documentation, code & listing. Solo Projects must be done alone. You may not communicate about them with anyone but the instructor.	~35%
Team (paired) exercises (TE)	weekly	To earn credit, all team exercises must be done by both members of the pair working together on each exercise.	~15%

**The course is designed to help you learn to explain and use these key computer science concepts and topics:**

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| <ol style="list-style-type: none"> <li>1. Analysis &amp; design, refinement</li> <li>2. Mathematical &amp; logical expressions</li> <li>3. Algorithms</li> <li>4. Variables &amp; data types, including objects &amp; arrays</li> <li>5. Coding and documentation style</li> <li>6. Procedural language structures                     <ol style="list-style-type: none"> <li>I. Sequence</li> <li>II. Methods</li> <li>III. Loops/iteration</li> <li>IV. If-then-else/selection</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>7. Object-oriented language structures                     <ol style="list-style-type: none"> <li>I. Classes &amp; objects</li> <li>II. Inheritance and/or interface</li> </ol> </li> <li>8. User-focused input &amp; output</li> <li>9. Testing, fixing &amp; debugging</li> </ol> <p>Optional topics:</p> <ol style="list-style-type: none"> <li>1. Sort</li> <li>2. Search</li> <li>3. Exceptions</li> <li>4. Data structures</li> </ol> |
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**Be sure to add the course number (141) in the Subject line** of any email message for this class or it may be delayed. Use your Shoreline college email account for this class and for other communications with me (sign up at <http://www.shoreline.edu/StudentAccounts.aspx>). These accounts are free to you. Use clear business-style English (not text-messaging). Avoid graphics unless requested.

**Late Work:** late work will not be accepted or graded; instead, your lowest solo project/homework score will be dropped. You cannot re-do or resubmit any work for re-grading.

**Grades:** Your overall earned percentage of available points grade will be converted to the 4.0 scale in the following way. For earning the percentage listed, you will get at least the corresponding grade shown here.

90%: at least 3.5, 85%: at least 3.0, 80%: at least 2.5, 75%: at least 2.0, 70%: at least 1.5, 60%: at least 0.7

**Grades of H, I, N, NC, P, V and Z** will be assigned in accordance with SCC Policy (see the college web site for details). The P (Pass) grade cannot be assigned for averages below 2.0 (75%).

The instructor may use or grade questions/exercises that statistically partially sample the material covered and may use or grade different portions for different students. We may use web based tools such as Blackboard. Check the web site or ask me for any clarification or details on team/solo requirements for each assignment.

1. **Collaborative learning:** You will be accountable for learning, helping others to learn and presenting what you have learned in both group and individual activities. You will also be accountable for evaluating what you hear from others in your class.
  - a. Before doing any collaboration, contact me if you are unclear if collaboration is allowed or required.
  - b. Study groups are helpful when learning. Respect the ideas, time and property of others.
2. Unless my instructions specify otherwise **assume solo work**. You must do **all solo work** such as assignments, quizzes, tests, etc., **on your own. If any assignments look too similar to me, they will receive 0 credit.** See SCC Policy 5030 for details on Academic Honesty.
3. **Accommodation:** If you are a student with a special need or condition that might affect your performance or participation in this class, please let me know during the first week of class so that we can work together for your success. Students with disabilities who have accommodation needs are required to meet with a Services for Students with Disabilities program staff to establish their eligibility for accommodation. All such information is kept private. Examples of accommodations include using sign language interpreters or recording class sessions. (Visit the college website for more information.)
4. **To succeed:** You will need
  - a. Time and determination to work. You must commit about as much time as you would for a calculus class (ask previous students of this class.) Plan to spend an average of 1 to 5 hours out of class for every credit: this means 5-25 hrs/week per 5 credit course.
  - b. Willingness to experiment and ask questions.
  - c. Strategies to organize files, handouts, tests, homework, and notes to avoid lost papers or files (BACKUP your work !)
  - d. **To excel:** You must Get to class, on time. Listen, Contribute, Take notes. Complete assigned reading before class starts, do the assignments on time. Ask questions: they are free; your grade is based entirely on your earned assignment and test scores.
  5. **Get help:** Don't wait. Ask questions. Come to office hours; ask for an appointment; my hours are usually flexible.
    - a. If you can't keep up with the class, see me early. There is assistance for "learning blocks" and other situations.
    - b. If you have special needs (such as, a reading problem), inform me so we can be sure you are getting the best help.
  - c. **Attendance:** -- I expect you to attend every class. You are responsible for all information given in your class, including any change of schedule or assignments. I do not take notes on questions or topics raised in class. You should exchange email addresses with other students in case you miss a class. If you suffer a disruption during the quarter, notify your instructors immediately. You can ask the Advising/Counseling Center to contact us for you. The sooner we know, the more likely we can help you to work around the problem and minimize your cost (financial, academic & emotional).
6. **Tests and assignments:** Plan ahead and ensure that the computer prints your name on all hardcopy.
  - a. **Assignments** Save all returned work. I may need it to record your grade.
  - b. Use 8-1/2 x 11 inch paper (with no "fringe") for all work handed in. Do NOT use cover sheets or binders for assignments or projects; just staple the required pages together, in order, clearly identified. Points may be deducted for submitting other pages.
7. **In-class test(s)** are due at the official end of class on the published day. See the late work policy.
8. **Quizzes** may be given anytime. **Quizzes** are due at the time announced. Late or make-up quizzes will not be accepted.
9. **Class Rules:** Do not use cell phones or pagers during class or exams, and turn off audible signals!
  - a. Only use computers for purposes appropriate to the current class topics—NOT email, surfing, chatting, instant messaging, etc.
  - b. Do not print during any class or test session without permission from the instructor.
10. **Prohibited in the computer labs** by law, school, department or instructor policy:
  - i. Smoking, drinking, or eating. Children and pets, no matter how cute, Duplication of material protected by the US Copyright Law, Playing or down loading games, Viewing or downloading pornographic or sexually offensive material
11. To protect individuals with **chemical sensitivities**, you must not wear any fragrance or perfume in (class) rooms.
12. **Weather:** Check the college web-site (<http://www.shoreline.edu/>) or phone message (206-546-4101) or KIRO, KING or KOMO radio and television stations. If Shoreline Community College is not mentioned, assume it is open. Shoreline Community College is not the same as Shoreline Public School District. Follow our schedule to prepare for class even if the campus is closed.
13. **Escape clause:** I will need to change classroom procedures and requirements if needed to reach the course goals. If I can answer questions in class I will. For questions beyond our scope or on past topics you may need to wait for time out of class.
14. **Misc:** You may be able to use an outside computer to produce work. You must be familiar with the hardware/software in class for quizzes/tests. If use of outside equipment causes minor variations in output, explain in a note on each item. You must get prior permission to use different software for assignments. It may present enhanced learning or may cause problems.
15. All storage devices must be labeled with your name and contact identification and include a plain text file named "ownerInfo.TXT" in the root directory containing your name and email, phone or other contact information.

**Before class:** Read the syllabus and additional syllabus details they apply to this class; get the required text book. Get [java](#), [jgrasp](#), visit the textbook [web site](#) to get slides & source files; Read [Javadoc](#) comments on the Sun web site. **Do NOT send .class or .ar files** for any programs, only submit properly named .java and .txt data files as needed.

Check on my web site (<http://www.shoreline.edu/rshields/>) daily for changes to this syllabus/schedule.

All reading and work is due on **or before** the time class starts (or time specified below) on the day listed.

**Ch.** = chapter in the text book. Read assigned material **before class**.

**Apx.** = Appendix in the text book. **p.** = page number(s) in the text book. ) **EX** = Exercises

**SC** = Self-Check Problems – prepare for a quiz on SC from the day they are listed and after.

**TE** = Team (pair) Exercises. **To earn credit** these must include both full names and the date and exercise numbers.

You must submit all complete correct and properly labeled TE work attached to the next week's SP listing.

**SP** = Solo Project. **To earn credit**, I must receive all work by the due time/date listed in the current syllabus.

Paper listings must be submitted **before the first 5 minutes of class**. **Late Work will not be accepted or graded.**

**web = research by the end of day listed.** For each topic, you must email a 1-sentence summary and 2 non-Wikipedia URL references. You may consult Wikipedia; but, must find and submit at least 2 other (non- Wikipedia) sources.

week	Mon.	Tue	Wed	Thu/Fri (no classroom)	Sat (no classroom)
1 3/28	1 <sup>st</sup> class day: Introductions: me, you, this course. By 11PM, <b>email Syllabus Quiz answers.</b> Before class Tuesday, <b>read Apx C</b> <b>Do the research web1:</b> List 3 benefits of paired programming <b>web1:</b> Read about <a href="#">Javadoc</a> comments on the Sun web site <b>web2:</b> paired programming <b>web3:</b> Dunning-Kruger effect <b>web4:</b> <a href="#">Why we don't get it</a> (See the abbreviation definitions above.)	<b>TE:</b> revise the Template.java you must use <a href="#">Javadoc</a> style comments with both your names. Email to self and test in new folder submit by Mon. <b>Read Ch. 1,</b> bugs, design factoring decomposition Divide & Conquer, one thing/module	1.1SC 2,3; 1.2SC 6,9,10,15 1.3 SC 20,22,23 <b>SP1</b> questions <b>drawFigure</b> Begin with DrawFigures3 p.43. Replace United States with yourname and meet all style requirements. Include code to unit test each method in the class.	<b>TE:EX</b> 1-victory 2-spikes, 4-difference, 8-egg, 9-eggs, 11-starFigures	Email SP .java file before 11PM Saturday. Bring paper listings of SP and TE to next class <b>No late work will be accepted or graded</b>
2 4/4	<b>Due SP1 drawFigure</b> listing +TE <b>Ch. 2</b> Data types & operators, precedence Variables For-loop, Design: reduce complexity, Hourglass <b>web1:</b> paired programming <b>web 2:</b> top-down design <b>web 3:</b> structured design <b>web 4:</b> <a href="#">Polya, How to Solve It.</a>		<b>SP2</b> questions Include code to unit test each method in the class. 2.1SC 2-4 2.2 SC 9, 11 2.3 SC 14,15,20 2.4 SC 26,28	<b>TE: EX2-series</b> 3-Fibonacci 4-square, 5-triangle, 16-search, 18-pseudocode, 19-fenestra	Email SP .java file before 11PM Saturday. Bring paper listings of SP and TE to next class

week	Mon.	Tue	Wed	Thu/Fri (no classroom)	Sat (no classroom)
3 4/11	<b>Due SP2 song</b> listing +TE <b>Ch. 3</b> Parameters, Return values, Use objects, Interactive programs, designs, Projectile case <b>Ch. 3G.1</b> Graphics	<b>Web1:</b> automated testing (JUnit) 3.1SC 1, 5-8 3.2 SC 9,10,12 3.3 SC 14,16,17	<b>SP3</b> questions 3.4 SC 26,28	<b>TE: EX</b> 3- prtPwrN 4-prtSquare, 5-grid, 6-lrgAbs 7-lrgestAbs, 11-padstr, 15-swapNames	Email SP .java file before 11PM Sat.
4 4/18	<b>Due SP3 book</b> listing +TE <b>Ch. 3G.1-3</b> , Procedural Decomposition, Pyramids <b>Ch. 4</b> If/else, object equality, round-off, Text processing char, Pre/Post cond. BMI exceptions, design, factoring	<b>web:</b> stepwise refinement, <b>web:</b> N. Wirth, <b>web:</b> D. Knuth 3G.1SC 1-3 4.1SC 1,2,8-10 4.2 SC 13.15.16	<b>SP4</b> questions 4.3 SC 17-20 4.4 SC 22-26 <b>TE: EX</b> , 3G#1-rat 3G#4-showDsnRct, 3G#5-squareDiag	<b>TE: EX</b> , Ch. 4: 1- fractSum 2-repStr, 5- prtRange, 6-maxMin, 13-prtPalindrm	Email SP .java file before 11PM Sat.
5 4/25	<b>Due SP4 pi and e</b> listing +TE <b>Ch. 5</b> While-loop, Booleans, User-proofing, Loop-and-a-half, Scanner Number Guess <b>APX D</b> assertions	<b>web:</b> build automation (make, Ant) 5.1SC 4, 5 5.2 SC 12 5.3 SC 14,15, 16, 17,	<b>SP5</b> questions 5.3 SC 18, 19, 21z 5.4 SC 23,25 5.5SC 28,29 Starting this week all your code must use "Boolean Zen"	<b>TE: EX</b> 2-gcd, 3-binary 7-diceSum, 11-heads3 12-sentinal, 13-consecutive	Email SP .java file before 11PM Sat.
6 5/2	<b>Due SP5 shapes</b> listing +TE <b>Ch. 6</b> File I/O, Token/Line input, try/catch Do not use try/catch to validate user input; use loops.	<b>Exam 1:Ch.1-5.</b> <b>1 page of notes</b> (no books)	<b>SP6</b> questions 6.1SC 2 6.2 SC 4,5 6.3 SC 8.9 6.4 SC 16,17	<b>TE: EX</b> 2-even 6-dblSpace 7-wordWrap 9-wrapWhole 10-stripHtml	Email SP .java file before 11PM Sat.
7 5/9	<b>Due SP6 javelin</b> listing +TE <b>Ch. 7</b> Array Basics traversal, search replace, compare, shift, reverse array, 2D, compareTo, this, args	<b>web:</b> hex & binary 7.1SC 4,5,7 7.2 SC 10.13 7.3 SC 14,16,17	<b>SP7</b> questions 7.4 SC 18,19,22 7.5 SC 28,30 p. 456:why not? p.496 #6 typo))^2	<b>TE: EX</b> 1-1stIdx 3-countInRange 5-mode, 7-kthL 9-mingap 18-wrdLength	Email SP .java file before 11PM Sat.
8 5/16	<b>Due SP7 walk</b> listing +TE <b>Ch. 8</b> objects, state, behavior, Design constructors,equals, Encapsulation, Instance methods: toString,instanceof p.285, 539 cohesion+coupling	<b>web:</b> revision control (Git) <b>8.1SC 2,4,5</b> 8.2 SC 6-9,11 8.3 SC 17-18	<b>SP8</b> questions 8.4 SC19-21,25 8.5 SC 26,27 p. 533 why throw vs. re-prompt?	<b>TE: EX</b> 1-manhattDist 2-isVertical 4-isCollinear 5-addTimeSpan 9-lineSlope	Email SP .java file before 11PM Sat.
9 5/23	<b>Due: SP8 names</b> listing +TE <b>Ch. 9</b> Inheritance, Polymorphism, super interaction, Interfaces	9.1SC 1-3; 9.2 SC 4,5, 8,9	<b>SP9</b> questions 9.4 SC 15-18 9.5 SC 19-22 9.6 SC 24,25	<b>TE: EX</b> 3-Harvadlawyer 8-MinMaxAcct 13-equals	Email SP .java file before 11PM Sat.
10 5/30 Hol. Mem. Day	<b>Due:SP9 personalities</b> listing +TE Read <b>Ch. 8-9</b> cont. <b>Ch. 12.1-3</b> Recursion (if time permits)	12.1SC 1-3, 12.2	<b>SP10</b> questions SC 7-9, 12.3 SC 10,11		Email SP .java file before 11PM Sat.
11 6/6	<b>Due: SP10 critter compete</b>	<b>Prep. day</b>	<b>Final Ch.1-9 date tbd</b>	<b>1 page of notes</b>	