The Pennsylvania State University
College of Information Sciences and Technology

IST 140 Introduction to Application Development

Spring 2016

Section 001: T-R   9:45-11:00am   208 IST Building

Instructor

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Teaching & Learning Assistants

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Course Web Site

We will be using the Canvas learning management system: https://psu.instructure.com

Course Overview

This is a first course in programming principles for application development. The course will focus on application development foundations including: fundamental programming concepts; basic data types and data structures; problem solving using programming; basic testing and debugging; basic computer organization and architecture; and fundamentals of operating systems. This is a hands-on course designed to help students learn to program a practical application using modern, high-level languages.

Course Objectives

At the conclusion of this course, students will be able to:

- Write, compile, and run basic procedural programs at the command-line.
- Understand, define, and use fundamental programming concepts.
- Understand, define, and use the elementary data structures.
- Understand, define, and use basic problem-solving approaches for application development.
- Understand, define, and use basic methods to test and debug programs.
- Understand and define basic computer organization, architecture, and operating systems principles at the application user/programmer level.

Course Texts

The first *required* course text is an interactive zyBook:
Lizarrage, A. & Lysecky, R. (2013). *Programming in Java*. Zyante Inc. (zybooks.com).

To subscribe to the online interactive textbook, follow the instructions below:

1. Sign up at zyBooks.com
2. Enter zyBook code PSUIST140HaynesSpring2016
3. Click Subscribe

IMPORTANT: If during the subscription process you are prompted to select your course section. *You are in section 001 (1).*

The zyBooks readings and activities are designed to give you a breadth of knowledge around the topic areas, and to provide opportunities for practicing with the different concepts, techniques, and tools covered in the course.

A second *required* course text is an eBook:
Lowe, D. (2015). *Java for Information Sciences & Technology*. Wiley. ISBN: 978-1-119-21470-0

This text is available through the Wiley Vital Source web site:
http://store.vitalsource.com/show/9781119214700

This is a fairly concise text that does a great job of covering the core material.

An additional *optional* text is:
Horstmann, C. (2012). *Big Java: Late Objects*, Wiley. ISBN: 978-1-118-08788-6

You will like this book if you feel benefit from more in-depth readings with lots of examples. The first seven chapters of this text nicely supplement the course content and zyBooks activities.

There is a free eBook version of this text available through the Penn State library:

http://proquestcombo.safaribooksonline.com.ezaccess.libraries.psu.edu/book/programming/java/9781118087886

You are responsible for all the readings and activities in zyBooks. You are responsible for all the readings, even if the material is not covered explicitly in class. Please read over the assigned material prior to class and be prepared to discuss and ask questions about the covered topics. You should also review the material after class as not every topic will be covered during class time. Many passages in the text may need to be read several times to gain clarity. Taking notes on the material you are reading and reflecting on both the reading and these notes will help you to understand better the issues, concepts and techniques that are being presented.

Assessment

The following weights are assigned to the different assessed components of the course:

zyBooks Activities	15%
Problem Sets	25%
In-class Activities	10%
Quizzes	30%
Final Exam	20%
	100%

Attendance

Attendance and participation are critical components of the course. Attendance is taken using daily quizzes in the Canvas LMS. You must be physically present in class to participate in the attendance quiz. Participating remotely is a violation of academic integrity and will be reported to the University.

The following table defines the attendance policy for the course:

Up to 4 missed classes	No grade deduction
5-6 missed classes	Minus one grade fraction (eg A- becomes a B+)
7-8 missed classes	Minus one full grade (eg A- becomes a B-)
9-10 missed classes	Minus two full grades (eg A- becomes a C-)
More than 10 missed classes	Fail

If you have a reasonable expectation that you will have more than 4 excused absences during the semester (e.g., due to recognized Penn State activities like sanctioned sports events or club meetings, religious holidays, or any other planned excused absences), you must put this in writing to the instructor during the first week of classes and be prepared to discuss this with him. Otherwise, you will be expected to adhere to the above attendance policy. A large number of excused absences will not necessarily be permitted. To learn programming typically requires more than the usual amount of focus and intensity. If you have activities going on that will interfere with this, you will need to take this course during a semester when you are not so distracted.

Assessment is based on 100 possible points with letter grades being assigned as follows:

A	93-100
A-	89-92.9
B+	86-88.9
B	83-85.9
B-	79-82.9
C+	76-78.9
C	70-75.9
D	60-69.9
F	0-59.9

General Assignment Grading Criteria
- Correctness (e.g. programs compile & run; language constructs are used appropriately)
- Completeness (e.g. programs address all problem statements and other requirements)
- Clarity (e.g. programs are formatted professionally; and are annotated)

Course Style
The course will follow an active, problem-based approach to learning. Quizzes, exams, in-class activities and homework assignments (problem sets) will provide the opportunity to gain practice with new concepts and skills, and develop and demonstrate a solid understanding of the course material.

Out-of-Class & In-Class Assignments & Activities:
Homework is assigned and reviewed regularly. The purpose of many homework assignments is to encourage you to explore material *before* it is discussed in class. Homework assignments are marked with an emphasis on effort and completeness. Assignments are to be completed by you, individually, unless explicitly specified in the assignment description. Please make sure to ask the instructor if you have any questions about the nature of a given assignment.

Quizzes:
About eight (8) quizzes will be given over the course of the semester to encourage your ongoing attention to course material. Covered topics will be drawn from assigned readings, lecture content and in and out of class assignments.

Final Exam
The course includes a comprehensive final exam. This purpose of this exam is to ensure that you continue to practice concepts and techniques learned over the course of the semester.

COURSE CONDUCT

Classes will start **on time** and end as scheduled.
You should attend each class and *actively participate* in the class activities and discussions.

Attendance will be tracked using the Canvas LMS. See table above for potential grade deductions.

Allowed absences do not excuse you from quizzes and other assessed in-class activities. There are no make-ups, but your single lowest quiz, problem set, and in-class activity score, one of each, will be dropped.

You must notify me (shaynes@ist.psu.edu) *before class* if you are going to miss class *for any reason*.

Students who participate in University-sanctioned events (such as athletics) must make prior arrangements and give ample notice.

Late Submissions
All work must be completed and turned in before the due date and time.
Assignments submitted within 48 hours after the due date and time will be marked for 50% credit. This means you will receive your marked score divided by 2.
There are no exceptions to the late submission policy.

The **computers** in the classroom are for course-related activities ONLY. Unless you are working on a course activity that explicitly requires that you use the computers, they should be closed. Surfing the web, e-mail, and on-line chat are some of the activities that are generally considered NOT related to the course. If spurious in-class computer use becomes a problem, I reserve the right to implement changes to the syllabus and grading schema to induce compliance.

Class Engagement You demonstrate this engagement in a number of ways including speaking up in class, bringing interesting and relevant material (such as copies of articles or URLs) in to the class, contributing to on-line discussions with peers via Canvas, working with the TAs, and visiting me during office hours to discuss the material being covered.

For every hour of class time, be prepared to budget about 3-4 hours of out-of-class time. This estimate is a guide; the time which you actually need will vary by topic and assignment. For example, if the material is new to you or difficult to comprehend, it will require more of your time.

All assignments should be computer-printed, double-spaced, on 8.5"x 11" paper. All pages should have 1" margins. Papers should be stapled and collated. Please do not use report covers.

Please take care to proofread your work. Writing mistakes will impact your grade, especially if they reflect carelessness on your part. Mistakes include spelling, grammatical errors, and typos. I will not read any work past the 5th mistake. You may find a good resource in the **Writing Center** (219 Boucke, 863-3240).

Please check that your work is properly referenced and adheres to standards of both academic integrity and proper form. The APA style (see http://www.apa.org) is generally accepted in our field.

I expect individual work to be just that - done by you, alone. I expect group work to be just that – a product of the collaborative efforts of all group members.

UNIVERSITY and COLLEGE POLICIES

Academic Integrity
According to the Penn State Principles and University Code of Conduct: Academic integrity is a basic guiding principle for all academic activity at Penn State University, allowing the pursuit of scholarly activity in an open, honest, and responsible manner. In according with the University's Code of Conduct, you must not engage in or tolerate academic dishonesty. This includes, but is not limited to cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person, or work previously used without informing the instructor, or tampering with the academic work of other students. Any violation of academic integrity will be investigated, and where warranted, punitive action will be taken. For every incident when a penalty of any kind is assessed, a report must be filed.

Plagiarism (Cheating): Talking over your ideas and getting comments on your writing or source code from friends are NOT examples of plagiarism. Taking someone else's words or source code (published or not) and calling them your own IS plagiarism. Plagiarism has dire consequences, including failing the assignment in question, failing the course, and university disciplinary action, depending on the circumstances of the offense. The simplest way to avoid plagiarism is to document the sources of your information very carefully.

Accommodating Disabilities
Penn State encourages academically qualified students with disabilities to participate in its educational programs. We are committed to equal opportunity in our admissions policies and procedures and are dedicated to providing reasonable accommodations for qualified students. Penn State students seeking special services or academic accommodations through Penn State must self-disclose their need for these services or accommodations to the World Campus or Penn State's Office for Disability Services (ODS). Contact Penn State's Office for Disability Services (ODS).

To be eligible for academic accommodations through ODS, students must have a documented Disability as defined by the Rehabilitation Act of 1973 or the Americans with Disabilities Act (ADA) of 1990. Learn more about the ODS eligibility requirements.

The University is responsible for making all its programs and services available to all students. The Office for Disability Services acts in an advisory capacity for all Penn State locations, including the World Campus. The World Campus will work with ODS to make reasonable academic adjustments or accommodations for eligible World Campus students.

Penn State's guidelines for appropriate documentation—and the verification forms necessary for each disability category—may be obtained from the "Documentation Guidelines and General Information for Students with Specific Conditions" section of the ODS Web site. For more information, contact ODS. Use of Trade Names Where trade names are used, no discrimination is intended and no endorsement by the World Campus, Outreach and Cooperative Extension, the College of IST, or The Pennsylvania State University is implied.

Statement on Nondiscrimination & Harassment (Policy AD42)
The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal

authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity or veteran status. Discrimination or harassment against faculty, staff or students will not be tolerated at The Pennsylvania State University. You may direct inquiries to the Office of Multicultural Affairs, 332 Information Sciences and Technology Building, University Park, PA 16802; Tel 814-865-0077 or to the Office of Affirmative Action, 328 Boucke Building, University Park, PA 16802-5901; Tel 814-865-4700/V, 814-863-1150/TTY.

For reference to the full policy (Policy AD42: Statement on Nondiscrimination and Harassment): http://guru.psu.edu/policies/AD42.html

Scheduling Conflicts
The schedule of courses is carefully reviewed each semester so that required courses do not have time conflicts. The University's computerized registration system will not schedule a student in classes that meet during overlapping periods and the College of IST prefers that students are not given permission to miss part of any class to report to another class.

Prerequisites
Prerequisites are approximations of the necessary specific or general academic knowledge, background, or semester classification required to succeed academically in a specific course. Concurrent courses are courses required to be taken in the same semester. The course instructor has the right to limit the students in the course to those who have the stated prerequisites. If this limitation is exercised, it must occur before the end of the course add period.

Add/Drop
Penn State's Drop/Add process for a full-semester course is the tenth calendar day of the semester. This time period allows students to adjust their schedule by dropping or adding courses after initial registration.
Consequently, you may see a fluctuation in your class enrollment during this time. Please refer to the University calendar for the current semester's add/drop timeline.

In the event of a University-wide emergency:
Course requirements, classes, deadlines and grading schemes are subject to changes that may include alternative delivery methods, alternative methods of interaction with the instructor, class materials, and/or classmates, a revised attendance policy, and a revised semester calendar and/or grading scheme. In the case of a University-wide emergency, please refer to the following about changes in this course:

Course web page https://online.ist.psu.edu/ist140/
Instructor email: pfisher@ist.psu.edu
For more general information about the emergency situation, please refer to:
http://www.psu.edu/PSUTXT (http://live.psu.edu/psutxt). This is a service designed to alert the Penn State community via text messages to cell phones when situations arise on campus that affect the ability of the campus - students, faculty and staff - to function normally.

Class Attendance
Class attendance is governed by Penn State Faculty Senate Rule 42-47 -
http://senate.psu.edu/policies/42-00.html#42-27

"The faculty, staff, and other resources of the University are furnished for the education of students who attend the University. A class schedule is provided for students and faculty so that a reasonably orderly arrangement for instruction is facilitated. The fact that classes are scheduled is evidence that the faculty believes class instruction is important. Therefore, class attendance is important for the benefit of students.

Accordingly, it is the policy of the University that class attendance by students be encouraged and that all instructors organize and conduct their courses with this policy in mind. A student should attend every class for which the student is scheduled and should be held responsible for all work covered in the courses taken. In each case, the instructor should decide when the class absence constitutes a danger to the student's scholastic attainment and should make this fact known to the student at once. A student whose irregular attendance causes him or her, in the judgment of the instructor, to become deficient scholastically, may run the risk of receiving a failing grade or receiving a lower grade than the student might have secured had the student been in regular attendance.

Instructors should provide, within reason, opportunity to make up work for students who miss class for regularly scheduled, University-approved curricular and extracurricular activities (such as Martin Luther King Day of Service, field trips, debate trips, choir trips, and athletic contests). However, if such scheduled trips are considered by the instructor to be hurting the student's scholastic performance, the instructor should present such evidence for necessary action to the head of the department in which the course is offered and to the dean of the college in which the student is enrolled or to the Division of Undergraduate Studies if the student is enrolled in that division.

Instructors also should provide, within reason, opportunity to make up work for student's who miss classes for other legitimate but unavoidable reasons. Legitimate, unavoidable reasons are those such as illness, injury, family emergency, or religious observance. If an evaluative event will be missed due to an unavoidable absence, the student should contact the instructor as soon as the unavoidable absence is known to discuss ways to make up the work. An instructor might not consider an unavoidable absence legitimate if the student does not contact the instructor before the evaluative event. Students will be held responsible for using only legitimate, unavoidable reasons for requesting a make-up in the event of a missed class or evaluative event. Requests for missing class or an evaluative event due to reasons that are based on false claims may be considered violations of the policy on Academic Integrity (Policy 49-20)."

Excused Absences
Excused absences are governed by Faculty Senate Policy E-11 - http://www.psu.edu/oue/aappm/E-11.html -

"Senate Policy 42-27 Class Attendance recognizes that on occasion, students may opt to miss a class meeting in order to participate in a regularly scheduled university-approved curricular or extracurricular activity, or due to unavoidable or other legitimate circumstances such as illness, injury, family emergency, or religious observance.

Procedure:
1. Students who will miss a class in accordance with Senate Policy 42-27, should, where appropriate, present a class absence form to the faculty member as soon as possible and, except

in unavoidable situations, at least one week in advance of a planned absence. In the case of illness, students are not required to secure the signature of medical personnel.
Students should be provided with a reasonable opportunity to make up missed work. Ordinarily, it is inappropriate to substitute for the missed assignment the weighting of a semester's work that does not include the missed assignment. Completion of all assignments assures the greatest chance for students to develop heightened understanding and content mastery that is unavailable through the weighting process. The opportunity to complete all assignments supports the university's desire to enable students to make responsible situational decisions without endangering their academic work.

2. If an instructor believes a requested absence for such events will harm a student scholastically, the instructor should present evidence for necessary action to the head of the department in which the course is offered and inform the assistant/associate dean of the college in which the student is enrolled, or to the Division of Undergraduate Studies if the student is so enrolled.

3. Students who believe they have been unfairly denied a make-up opportunity should, after trying to resolve the problem with the course instructor, contact the head of the department for the course in which the student is enrolled.

4. If the problem is not resolved, the student should contact the sponsoring agency or university department (in some instances, this may be the student's college assistant/associate dean for undergraduate programs or the student's campus academic officer) and provide documentation describing the unresolved make-up opportunity. The sponsoring agency or university department should attempt to resolve the problem.

5. If the problem is still unresolved, the sponsoring agency or university department should forward the documentation to the Vice President and Dean for Undergraduate Education for resolution.

6. False claims of legitimate or unavoidable absence may be considered academic integrity violations (Senate Policy 49-20, AAPP G-9).
Note: As of Fall, 2002, University Health Services (UHS) no longer provides verification of illness forms for minor illnesses or injuries. Verification will be provided only for serious illnesses for which UHS clinicians provided services, or when UHS has received such documentation from outside providers."

6. Extended Absences.   "Policy E-11 above provides that verification of minor illnesses is not necessary. However, for extended absences due to things like illness or other personal emergency, instructors may require documentation which may be obtained using this procedure, which may be viewed here - http://studentaffairs.psu.edu/health/welcome/illnessVerification/".

This policy states
"Policy for Verification of Illness
University Health Services (UHS) does not provide verification of illness forms for minor or routine illnesses or injuries.

UHS may provide verification of illness forms for significant prolonged illnesses or injuries resulting in absence from classes.

Routine Illness
A routine illness would be a minor illness or injury, such as colds, and flu-like or self-limited gastrointestinal illnesses.
For routine illness-related absences, students should correspond directly with the faculty as soon as possible regarding their situation, ideally before they miss a class, exam, or other evaluative activity.

Significant, Prolonged Illness
A significant, prolonged illness is a serious illness or injury lasting at least a week. Medical documentation is required, either from UHS clinicians or outside clinicians.
When appropriate, students may request the verification during their UHS clinician visit or send a secure message to their clinician or the Advice Nurse through myUHS. If students have received care from an outside provider for a significant, prolonged illness, they must provide appropriate documentation to the UHS Director, 502A Student Health Center, 814.865.6555."

COURSE SCHEDULE

This is a **tentative** schedule and is **subject to change** during the semester.
Other assignments and readings due on a specific day may be posted on the course Canvas pages.

Week	Dates	Unit/Lesson	Readings/Assignments
1	January 12-18	*Units 0 & 1* Course overview. Computers, Virtual Machines, Operating Systems, and more…	Java for IST Ch.1&2 Horstmann: 1.1, 1.2 zyBooks 1.1 – 1.7
2	January 19-25	*Unit 1* Java, Programming Environments, Errors, Algorithms	Java for IST Ch.3 Horstmann: 1.3-1.7 zyBooks 1.8 – 1.15 Quiz 1
3	January 26 – February 1	*Unit 2* Fundamental Data Types	Java for IST Ch.4&5 Horstmann: 2.1-2.3 zyBooks 2.1 – 2.9
4	February 2-8	*Unit 2* Fundamental Data Types	Java for IST Ch.6 Horstmann: 2.3-2.5 zyBooks 2.10 – 2.21 Quiz 2
5	February 9-15	*Unit 3* Decisions	Java for IST Ch.7 Horstmann: 3.1-3.4 zyBooks 3.1 – 3.6
6	February 16-22	*Unit 3* Decisions	Java for IST Ch.8 Horstmann: 3.5-3.8 zyBooks 3.7 – 3.15 Quiz 3
7	February 23-29	*Unit 4* Loops	Java for IST Ch.9 Horstmann: 4.1-4.4 zyBooks 4.1 – 4.6
8	March 1-7	*Unit 4* Loops	Horstmann: 4.5-4.9 zyBooks 4.7 – 4.13 Quiz 4
	March 8-14		
9	March 15-21	*Unit 5* Arrays	Java for IST Ch.10 Horstmann: 6.1-6.3 zyBooks 5.1 – 5.8
10	March 22-28	*Unit 5* Arrays	Java for IST Ch.11 Horstmann: 6.7-6.8 zyBooks 5.9 – 5.12 Quiz 5
11	March 29-April 4	Unit 6 Methods	Java for IST Ch.12 Horstmann: 5.1-5.5 zyBooks 6.1 – 6.8
12	April 5-11	*Unit 6* Methods	Horstmann: 5.6-5.9 zyBooks 6.9 – 6.14

Week	Dates	Unit/Lesson	Readings/Assignments
13	April 12-18	Unit 6 Methods	Quiz 6
14	April 19-25	Unit 7 Input/Output & Exception Handling	Java for IST Ch.13,14,15 Horstmann: 7.1-7.5 zyBooks 7.1 – 7.4
15	April 26-May 2	Unit 7 Input/Output & Exception Handling Final Exam Review	zyBooks 7.5 – 7.8 Quiz 7
		** Final Exam - Week of 5/2–5/6 -TBD	