ILLINOIS TECH | College of Computing

ITMD-510 Object-Oriented Application Development *Fall 2023*

Course Syllabus

Professor:	Barry Speller
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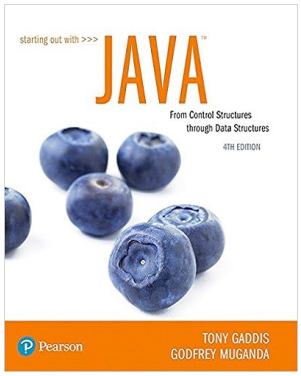
Office Hours:	
Class Times:	Wed, 1:50pm – 4:30pm
Location:	IIT Tower, Room 14C5-1

This syllabus applies to these Fall 2023 sections

- ITM 510-05, Live Section
- ITM 510-06, Online Section

Textbook



Starting Out with Java: From Control Structures through Data Structures, 4th Edition
– Tony Gaddis, Godfrey Muganda
ISBN-10: 013478796X
ISBN-13: 978-0134787961

ITM Department Handbooks

ITM Student Resources	http://blogs.iit.edu/itm_loopback/student-resources/
Graduate Student Handbook	http://itm.iit.edu/data/ITMGraduateStudentInformationFall2021.pdf
Undergraduate Student Handbook	http://itm.iit.edu/data/ITMUndergraduateStudentInformationFall2021.pdf

Catalog Description

This course covers a broad spectrum of object-oriented programming concepts and application programming interfaces. The student considers the details of object-oriented development in topics of multi-threading, data structure collections, stream I/O and client interfaces. Software engineering topics of packaging and deployment are covered as well. Strong emphasis is placed on the creation of applications providing solutions for defined business problems. Hands-on exercises reinforce concepts taught throughout the course. **Credit:** 3-0-3

Program Educational Objectives

Students completing this course will be able to:

- Write Object Oriented Java Standard Edition (SE) code.
- Create a Java based Graphical User Interface with JAVA FX.
- Locate application functionality from a JDBC API database.
- Author well-constructed code and software documentation.
- Utilize an IDE to develop, error trap, test and debug Java SE code.

Course Outcomes

Students completing this course will be able to:

- Understand basic Object-Oriented programming concepts including Inheritance and Encapsulation, Interfaces, Polymorphism and Object Analysis and Design (OOAD).
- Apply Test Driven Development methodologies including Junit testing.
- Understand packaging and deployment of Java SE
- Perform file handling (IO) and file stream processing including knowledge of Socket Programming (NIO)
- Processing strings using Regular Expressions
- Describe Software development terminology such as Coupling and Cohesion.

Course Activities

You will meet the objectives listed above through a combination of the following activities in this course:

- Apply Test Driven Development methodologies including Junit testing.
- Complete all course assignments at a proficient level with high quality and on time.

Course Policies and Procedures

General Information

Expected conduct. Considerate conduct by all persons is vital to a favorable learning environment. Any infringement on others' rights to get an education will be dealt with appropriately. Considerate conduct includes:

- Arriving to class on time and returning to your seat by the end of a break during class.
- Not holding a conversation with another student or on your cell phone. If you must make or take a phone call, please do so outside of the classroom.
- Setting all electronic devices to a silent or vibrate mode.

The instructor reserves the right to require that a student close, cease using, or completely power off any device, including a laptop.

If you create a disturbance, you will be asked to leave the classroom, and your attendance and participation will be discounted.

Please maintain quiet in your environment for virtual remote (live online) sessions to prevent any background noise from interfering with the instructor or any student who may be speaking. In general, please mute your audio unless it is your turn to speak. **The instructor reserves the right to disconnect students if they contribute disruptive or inappropriate audio or video to a class session.**

Participation. To achieve maximum benefit from the course, it is important to engage the content comprehensively.

- Read the assigned materials before the lecture
- Perform demonstration exercises
- Complete all assignments, and assessments
- Contribute to all discussions in a timely manner

You are responsible for submitting all work on or before the due dates. All due dates will be published in the Blackboard course portal. The reading schedule is provided as part of this syllabus. Please manage your time wisely.

Technical difficulties. This course relies heavily on access to computers, specific software, and the Internet. At some point during the semester, you will have a technology problem: your laptop will crash, a file will become corrupted, a server will go down, or something else will occur. These are facts of life, not emergencies. Technology problems will **NOT** normally be accepted as excuses for not completing assignments or not participating in the course. Count on "stuff" happening and protect yourself by doing the following:

- Plan ahead and start early, particularly if scarce resources are required
- Save work often—at least every ten minutes
- Make regular backups of files in a different location from the originals
- When editing, set aside the original and work with a copy
- Practice safe computing when surfing the web and checking email
- On your personal computer, install and use software to control viruses and malware

Assignments

Assignments include programming exercises and assessments. Each programming assignment is related to the chapter(s) covered each week. To receive points, a programming assignment must

- be submitted in a zip file (compressed folder) containing the entire project
- demonstrate the concepts and topics from the related chapter
- successfully compile and run

NOTICE: Programming assignments that do not meet the requirements above will receive a score of zero.

The primary criteria that will be used for evaluating assignments are program correctness, readability, documentation, and assignment correctness. This will be reflected in the rubric.

Assignments (cont)

Assignment Submissions. All programming assignments must b**e submitted in Blackboard by the due date**. All due dates are provided in Blackboard. Assignments may not be submitted after the due date. Once an assignment is no longer available in Blackboard, it may not be submitted.

Please do not

- inform the instructor or the teaching assistant that you can no longer see the assignment in Blackboard,
- ask the instructor to reset the assignment's availability, or
- submit an assignment by email.

Note: Any assignments submitted by email or outside of Blackboard will be disregarded.

Exams, quizzes, and tests

The schedule for exams, quizzes, and tests is available in the Blackboard course portal. Retakes will not be allowed. Making up a quiz or exam is not allowed except in the case of a documented emergency. It is mandatory that you read the course material and complete all assignments before taking any assessments.

Communication

All communication should begin with this course's name and the student's name. **All communication regarding any coursework must be sent to both the instructor and the teaching assistant.**
Communication involving a personal matter should only be sent to the instructor.

When sending an email

- Your email must be sent from your IIT (@hawk.iit.edu) address or from within Blackboard.
- Your email's subject should be **ITMD-510-XX, (Your name)**
  XX should be the course section
- Please clearly indicate the problem or concern you are having.

Note: Every effort will be made to respond within 24 hours.

Important communication to students will be posted in Blackboard as an announcement and/or sent via email. Students are responsible to check their IIT email every 24 hours.

Information Technology & Management Notebook Computer Specifications

Students enrolled in Information Technology & Management (ITM) degrees after Spring 2016 are required to own a notebook computer. The standards below reflect specifications for notebook computers for use by ITM students; each category is broken down into recommended, minimum and, where applicable, optional specifications. Your system may run **any** operating system but must be able to run Microsoft Windows 8.1 Professional as the primary operating system or as a secondary (dual-boot) operating system or as a virtual machine using virtualization software. These are specifications you must meet if you are purchasing a notebook computer for use in our program. If you have questions about these specifications, please contact Ray Trygstad, trygstad@iit.edu or 630.447.9009.

ITEM	RECOMMENDED	MINIMUM	OPTIONAL/OPTIMAL
Processor (CPU)	Intel Core i7 AMD Ryzen 5 / A8	7th Gen Intel Core i5 AMD A4	Intel Core i9 or 8th Gen i7 AMD Ryzen 7 / A10
◆ *You may not be able to run virtualization software adequately without VT or AMD-V technology, not found in older CPUs.* ◆ *New 2020 **MacBooks** with the **Apple-designed M-1 chip** are **not acceptable**; MacBooks used in our program must have Intel processors.*			
RAM Memory	8GB or greater	8GB	16GB RAM optimal to run Windows 8.1/10 & virtualization
◆ *16GB or more of RAM is highly desirable.*			
Operating System	Microsoft Windows 10 Education (64 bit)	Microsoft Windows 8.1 Professional (64 bit)	Linux or BSD Unix version Macintosh OS/X / MacOS
◆ *MacBooks must have BootCamp, Oracle VirtualBox, Parallels Desktop or Vmware Fusion installed allowing running of Microsoft operating systems. New 2020 **MacBooks** with the **Apple-designed M-1** chip are **not acceptable**; MacBooks for our program must have Intel processors.* ◆ *Linux or Solaris notebooks must have Oracle VirtualBox, Xen, KVM, or VMware Workstation installed allowing running of Microsoft operating systems.* ◆ *Oracle VirtualBox, our **recommended** desktop virtualization solution, is available for free at http://www.virtualbox.org/. Depending on your course you may also be able to run **Microsoft Hyper-V**, which is why Windows Professional or Education is required.* ◆ *Microsoft and Linux software is available at no cost to all ITM students but you should purchase a system that will support Windows 8.1 Professional as a minimum standard. Windows 10 Education is available free to all ITM students and is the most complete version of Windows. Windows **Home** versions will not support all software or OS functions you will need in our curriculum.* ◆ *Ubuntu and Ubuntu varients Kubuntu, Linux Mint, and Pinguy, as well as OpenSUSE are recommended Linux distributions.*			
Hard Drive	1TB	500GB	SSD – 512GB or 1TB 7200 RPM hard drive(s)
Optical drive (May be external)	24-48x CD-RW/DVD-RW	24x CD-RW/DVD-R	Blu-Ray / Blu-Ray-R External drive for Surface or Air
Floppy drive	Neither required or expected		3.5 inch 1.44MB
Graphics card	1GB or greater, 24-bit color	256MB 24-bit color	
Display resolution	1600x1200 UXGA or greater	1280x1024 XGA	1440x900 WXGA+
Wireless Network	IEEE 802.11ac (WPA2-Enterprise support required)	IEEE 802.11g/n	4G Wireless
Network Port	1000Base-T ethernet	100Base-T ethernet	(USB Adapter is OK)
◆ *Virtually all notebook PCs sold today include a gigabit (1000Base-T) ethernet port as standard items.*			
Peripheral Ports	2 USB-3 / 1 USB-2 or USB-C; HDMI video connector or Display Port video connector or USB-C video connector	1 USB-2; RGB video connector	IEEE 1394 (FireWire) 3 USB-3 / USB-3.1 eSATA
Office Software	LibreOffice	LibreOffice	Microsoft Office 2010 or newer
◆ *LibreOffice is available for free at http://www.libreoffice.org/ or (preferred) http://www.ninite.com.* ◆ *A trial subscription to Microsoft Office 365 which includes Microsoft Office for Windows or OSX may be available to our students with an iit.edu email address at https://www.microsoft.com/en-us/education/products/office. It is **not supported** by ITM or Illinois Tech OTS.*			

Information Technology & Management Notebook Computer Specifications (cont)

ITEM	RECOMMENDED	MINIMUM	OPTIONAL/OPTIMAL
Anti-Virus Software	including all current updates		Optional on Mac/Linux
◆ *Illinois Tech provides a licensed version of McAfee VirusScan for use by for all students, faculty & staff; Microsoft Security Essentials—which is free from Microsoft—is also recommended. You may not operate any version of Microsoft Windows on Illinois Tech networks without installed anti-virus software.*			

Convertible or "2-in-1" systems such as the Microsoft Surface, Dell Inspiron or Dell Latitude, Lenovo Thinkpad Yoga or Lenova Yoga, Acer Aspire, or Toshiba Satellite Radius that comply with these specifications are acceptable. Students should have a flash/thumb drive for lab use; 64GB minimum is recommended. See the ITM Student Information publication or https://blogs.iit.edu/itm_loopback/software/ for software available at no cost to ITM students.

Links to special pricing on Dell and Apple computer hardware is available to Illinois Tech students at https://ots.iit.edu/pc-mac/student-pcs-macs.

Academic Integrity

Plagiarism. All work you submit in this course must be your own. Plagiarism is a serious violation in an academic institution. Any violation of the IIT policies regarding academic honesty and/or integrity will be referred automatically to the appropriate university authorities for disposition. Please check the appropriate pages on the university website for definitions and regulations. The minimum penalty for cheating will be a zero for all parties involved in that test, assignment, hands-on exercise, or assessment. There is no excuse for not understanding this policy and if you do not understand it, please consult with your instructor to discuss the matter until you do.

http://bulletin.iit.edu/graduate/academic-policies-procedures/academic-honesty/

Collaboration. Students may only collaborate on assignments or projects that are explicitly designated as group assignments or projects. Students submitting identical work or in some cases even substantively the same will be asked to discuss the assignment with me. If one student admits to having copied the work, or if there is clear evidence of who is guilty, the guilty student will be assigned a grade of zero. If no one admits to the offense or a reasonable determination of guilt cannot be made, each student involved will be assigned a grade of zero. In either case, an Academic Honesty Violation Report will be filed, and it may result in your expulsion from the course with a failing grade as per the IIT and ITM academic honesty policies.

Intellectual Property (IP). Under no circumstances may a student utilize any assignment, questions and/or answers, exam, spoken material, video, or any content from the instructor outside of class and post it, trade it, share it, or otherwise give it away in person, online or by any digital or non-digital means, without express written permission.

Withdrawal policy

You are responsible to withdraw from the course if you no longer intend to attend class. A withdrawal must be done on or before Monday, October 30, 2023. See the academic calendar.

Incomplete Policy

Incomplete grades are generally not given without sound reason and documented evidence as described in the IIT Student Handbook. In all cases, for a student to receive an incomplete, he or she must be passing and must have completed a significant portion of the course.

Accommodations

Reasonable accommodations will be made for students with documented disabilities. To receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. The Center for Disability Resources (CDR) is located in the IIT Tower, 3rd Floor, Suite 3F3-1, telephone 312.567.5744 or disabilities@iit.edu.

Illinois Tech's Sexual Harassment and Discrimination Information

Illinois Tech prohibits all sexual harassment, sexual misconduct, and gender discrimination by any member of our community. This includes harassment among students, staff, or faculty. Sexual harassment of a student by a faculty member or sexual harassment of an employee by a supervisor is particularly serious. Such conduct may easily create an intimidating, hostile, or offensive environment.

Illinois Tech encourages anyone experiencing sexual harassment or sexual misconduct to speak with the Office of Title IX Compliance for information on support options and the resolution process.

You can report sexual harassment electronically at iit.edu/incidentreport which may be completed anonymously. You may additionally report by contacting the Title IX Coordinator, Virginia Foster at foster@iit.edu or the Deputy Title IX Coordinator, Esther Espeland at eespeland@iit.edu.

For confidential support, you may reach Illinois Tech's Confidential Advisor at (773) 907-1062. You can also contact a licensed practitioner in Illinois Tech's Student Health and Wellness Center at student.health@iit.edu or (312)567-7550.

For a comprehensive list of resources regarding counseling services, medical assistance, legal assistance, and visa and immigration services, you can visit the Office of Title IX Compliance website at https://www.iit.edu/title-ix/resources.

Our Contract

This syllabus is my contract with you as to what I will deliver and what I expect from you. If I change the syllabus, I will issue a revised version of the syllabus; the latest version will always be available on Blackboard. Revisions to readings and assignments will be communicated via Blackboard.

Tentative Course Outline

	Week	Reading: Chapter	Topic
1	Aug 23		Course Introduction
2	Aug /30	6	A First Look at Classes
3	Sept 6	7	Arrays and the ArrayList Class
4	Sept 13	10	Inheritance
5	Sept 20	11	Exceptions and Advanced File I/O
6	Sept 27	12 13	JavaFX – GUI Programming and Basic Controls – Advanced Controls
7	Oct 04	17	Generics
8	Oct 11	18	Collections and the Stream API
9	Oct 18	19 20	Linked Lists Stacks and Queues
10	Oct 25	22	Databases
11	Nov 01		Concurrency, Regular Expressions
12	Nov 08		Networking
13	Nov 15		JUnit
14	Nov 22	**Thanksgiving Break (Nov 22-26)**	
15	Nov 29		Packaging and Deployment
	Dec 05		Final Exam

Last day to withdraw Mon, Oct 30

The instructor reserves the right to modify, change, or waive any part of the syllabus or the evaluation criteria for this course. The instructor will provide prior notification of any modifications. The class schedule provides a general guideline for planning and preparation purposes only. Actual dates may vary at the instructor's discretion reflecting subject difficulty, length of discussions, addition of supplemental materials, etc.

Grading Criteria

Grading standards for undergraduate and professional learning students:		
A	Outstanding work reflecting a substantial effort	90-100%
B	Excellent work reflecting a good effort	80-89.999%
C	Adequate work meeting minimum expected requirements	70-79.999%
D	Substandard work not meeting reasonable expectations	60-69.999%
E	Unsatisfactory work	0-59.999%

The final grade for the class will be calculated as follows:	
Discussion	10%
Programming Exercises	45%
Quizzes	20%
Final Project	25%