

ATYP AP Computer Science

2022

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Text: *Java Concepts, Cay Horstmann, 5th edition, Wiley 2008 (provided)*
A 2 gig or bigger flash drive to store your programs and software for the class is required.
Optional Book to help prepare for the AP exam – *5 Steps to a 5 – AP Computer Science A* by Johnson, Paymer, Klipp, McGraw Hill, ISBN 978-1260467147 (not provided)

Goals: Students in this course will learn to

- Design and implement computer-based solutions to problems in a variety of contexts
- Select and develop appropriate algorithms and data structures to solve problems
- Be familiar with the AP subset of the Java programming language and to code fluently with it.
- Read and understand a large program like the AP Case Study Grid World
- Identify the components of the hardware & software of a computer and describe their functions & relationships
- Recognize the social and ethical implications of computer use

Class: *Mondays and Wednesdays – in Microsoft Teams virtually. 2 – 3:50 p.m.*

Grading Policies: Discussion problems will be assigned each week. They should be done by Wednesday of that week. Most weeks, we will discuss these in class but some weeks they will be turned in. You do not need to write up solutions to all problems but be able to answer each question if called on. Each week at least one computer based assignment will be due. You should have access to a computer with Java and BlueJ loaded on it – you may download them free from <http://bluej.org>. There will be 2 exams during the course of the year. The typical grading scale will apply (90-100% is an A, 80 – 89% is a B, etc.). Students will submit all work to E-learning.wmich.edu so students must know their GoWMU login and password.

AP Exam: AP Exam: All students are expected to take the AP exam. The AP exam will be given on **Wednesday, May 4, at 12 noon on campus**. More details will be sent home as the date approaches.

Please let me know if you are having any problems with this course. Difficulties are easier dealt with early before they turn into a mountain! Let me know how you are doing! Phone calls are welcome at any time from both students and parents.

Tutor Hours are Sundays from 4-5 pm with Zander. Check Teams for the meeting info.

Schedule (we will have a practice AP Test on Saturday, April 16 at 9 am):

Wk	Dates	Topic	Reading	Labs/PP	DQ
17	Jan 19	Inheritance	MBS Intro 10.1 – 10.2	MBS Intro, Demo 1, Demo 2	MBS Intro Analysis Questions
1	Jan 24 & 26	Inheritance	10.3-10.5, MBS	MBS part 1	R10.4, R10.5
2	Jan 31 & Feb 2	Inheritance	10.6, MBS	MBS part 2	R10.6, R10.7
3	Feb 7 & 9	Inheritance	10.7, 10.8	MBS PP	R10.10
4	Feb 14 & 16	Testing/Debugging	3.6T, 5.5T, 7.8T, 8.10T 6.6T-6.7T	Percolation Lab	R5.19, R5.20, R5. 21
5	Feb 21 & 23	Designing Classes Abstract Classes*	8.1 -8.5, Adv Tpc 10.1*	Percolation PP	R8.1, R8.11, R8.15, R8.19
6	Feb 28 & Mar 2	Designing Classes	12.1-12.3	Theater Seating Chart Lab	R12.3, R12.4, R12.6
7	Mar 7 & 9	Recursion, Static & Scope	8.6-8.9 13.1-13.4	Class Design Lab Recursion Lab	Recursion and ChessPiece Questions in eLearning
8	Mar 14 & 16	Computer Hardware	Online	CPU Simulator Lab	R8.20, R8.28 Practice Test
9	Mar 21 & 23	GUIs/AP Practice	2.11G-2.13G 9.6G-9.8G,	GUI Lab	Test #2 – March 23
		Spring Break	No Class	March 28 & 30	April 4 & 6
10	April 11 & 13	Sorting, Big Oh/AP Practice	14.1 –14.5, 14.8	Insertion Sort	R14.3, R14.5, R14.7, R14.8, R14.9, R14.10, R14.11, R14.13
	Saturday, April 16	AP Practice Test			
11	April 18 & 20	Exception Handling/AP	Chapter 11	P11.14, p 454	R11.7, R11.8, R11.14, R11.15
12	April 25 & 27	Ethics and Society Issues AP Practice			
13	May 2	AP Practice		No Class on	Wed, May 4 AP Exam at noon
14	May 9 & 11	Final Project Design		Start Final Project	
15	May 16 & 18	Final Project			
16	May 23 & 25	Final Project			Final Project Due Wednesday, June 1

*http://higheredbcs.wiley.com/legacy/college/horstmann/0470105550/features_chapter/at_10_01.pdf