CS 200 - Programming I

Marc Renault

Department of Computer Sciences
University of Wisconsin – Madison

Fall 2019

TopHat Sec 3 (1:20 PM) Join Code: 682357
TopHat Sec 4 (3:30 PM) Join Code: 296444

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

CS 200 - Programming I: Fall 2019

Computer Science and Programming

Computer Science

Programming

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- Broad discipline that explores any and all areas of computation.
- Includes: theory of computation, algorithms, computer graphics, language theory, systems, and human-computer interaction.

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- An application of computer science.

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- Includes: theory of computation, algorithms, computer graphics, language theory, systems, and human-computer interaction.

Programming

- Providing a set of instructions to a computer to automate a specific task or solve a given problem.
- An application of computer science.
- Implementing algorithms.

CS 200 Emphasises Declarative and Procedural Knowledge

Declarative Knowledge

- Knowing that something is the case.

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- Knowing the CS jargon.
- Knowing the Java syntax.

Procedural Knowledge

- Knowing how to do something.
- Solving a problem systematically.
- Writing that solution in Java.

About You

My current year in school is:

- **a.** Freshman
- **b.** Sophomore
- **c.** Junior
- **d.** Senior
- **e.** Graduate Student
- **f.** Other

About You

My primary reason for taking CS 200:

a. I am very interested in the subject.

b. I am curious to learn more about the subject.

c. It fulfils a requirement for my CS major or certificate.

d. It fulfils a requirement outside of the CS major or certificate.

e. It fits my schedule.

f. I've heard good things about the course.

About You

I have daily access (outside of university labs) to computers with the following operating systems:

a. Windows

b. Mac

c. Linux

d. Other

e. None

About You

My favourite Star Wars movie (from the trilogies) is:

a. I - The Phantom Menace
b. II - Attack of the Clones
c. III - Revenge of the Sith
d. IV - A New Hope
e. V - The Empire Strikes Back
f. VI - Return of the Jedi
g. VII - The Force Awakens
h. VIII - The Last Jedi
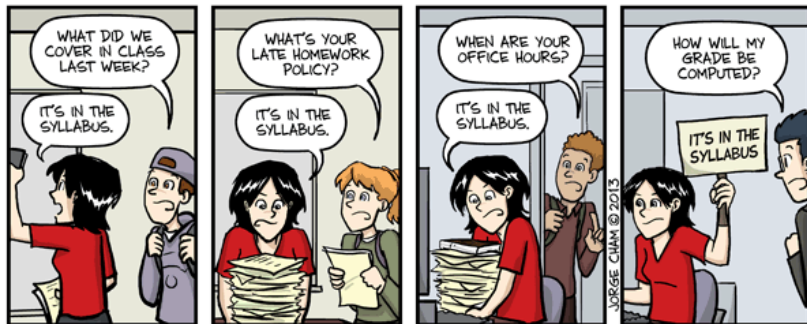i. N/A - Never seen them

CS 200 Programming I
Spring 2019 Team
https://cs200-www.cs.wisc.edu/wp/contact/

Instructors and Consultants (Teaching and Lab Assistants)

https://cs200-www.cs.wisc.edu/wp/contact/

CS 200 WEBSITE

HTTPS://CS200-WWW.CS.WISC.EDU/

Course Aim

https://cs200-www.cs.wisc.edu/wp/syllabus/

Overall

- Intended for students who have no prior programming experience.
- Teach the process of incrementally developing small programs along with fundamental CS topics.
- Key topics: problem abstraction, edit-compile-run cycle, data types, control structures, basic testing and debugging, and good programming practices.

Course Aim

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Specific Learning Outcomes

- Design and implement a standalone program that can interact with the user via prompts and or menus, access and edit data stored in an array or list structure, and use and further process the data found in those structures.

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- Able to trace code to determine output or results.

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Specific Learning Outcomes

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- Able to trace code to determine output or results.

- Able to implement a given program design and choose correct control structures for implementing algorithms expressed in pseudocode.

Course Aim

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Specific Learning Outcomes

- Able to interpret a variety of diagram types used to express programming concepts and results: truth tables, memory model diagrams, control flow charts, class diagrams, object diagrams, and use-case diagrams.

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- List, describe, use the basic I/O operations for reading and writing text files to and from the computer's hard drive.

Getting Started

Getting Started

https://cs200-www.cs.wisc.edu/wp/

Checklist

1. Best Course for you?
2. zyBook Registration
3. TopHat Registration
4. Activate Piazza account
5. Activate CS Account
6. Find Team Lab
7. Review the Syllabus
8. By week 3: Exam conflicts and accommodations
9. By week 3: Install Java 8 and Eclipse on your computer

1. Best Course for you?

New to Programming

- CS 200 is intended for CS majors or those who are planning on doing more CS courses.
- CS 301 is intended for non-CS majors and is taught using Python.

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Experience in Programming

- Try the first assignment from CS 300 (http://cs300-www.cs.wisc.edu/wp/).
- If you can do it without help, talk to CS 300 instructor about enrolling.

2. zyBook Registration

Required:

COMP SCI 200: Programming I
zyBooks.com, 2015.
zyBook code:
WISCCOMPSCI200Fall2019

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COMP SCI 200: Programming I
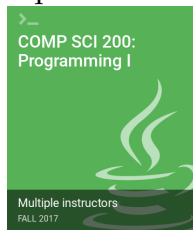**zyBooks.com, 2015.**
zyBook code:
WISCCOMPSCI200Fall2019

Use zyBooks for

- Textbook
- Participation activities (Before lecture - 5%)
- Challenge activities (After lecture - 5%)

- Programming Assignments (ZyLab activities - 25%)

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- Textbook
- Participation activities (Before lecture - 5%)
- Challenge activities (After lecture - 5%)
  - Includes Ch 1 Training Labs (1.12 and 1.13)
- Programming Assignments (ZyLab activities - 25%)

3. TopHat Registration

TOP HAT

Join Codes:

- Lecture 003 MWF (1:20 PM): 682357
- Lecture 004 MWF (3:30 PM): 296444

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In-class participation

- Facility classroom participation.
- Participation grade (5%)
- Grade is calculated on a per class per week basis.

4. Activate Piazza Account

Online question resource

- One discussion area for all sections.
- Interaction of students, consultants and instructors.
- First stop for getting questions answered.

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Rules

- Be courteous.
- Don't post code!
- Search first, post second.
- Read Piazza Expectations post.

5. Activate your CS Account

CS Account Key Points

- All registered CS 200 students are provided an account for the CS lab.
- Needed to log into lab computers.
- The username and password can differ from your UW NetID.
- If you don't have a CS account, you will get an email from lab@cs.wisc.edu with instructions to activate your CS account.
- 1 day delay in activation.
- Some accounts may not be available until after the first day of classes.

6. Prepare for Team Labs

Team Labs

- Start Week 2
- Review the previous week zyBooks chapter.
- Broken up into labs of 50 students with 1 consultant per 12 to 14 students.
- Pair programming.
- Labs are designed to be interactive.

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- Review the previous week zyBooks chapter.
- Broken up into labs of 50 students with 1 consultant per 12 to 14 students.
- Pair programming.
- Labs are designed to be interactive.
- Marks are participation based:
  - Arrive on time (within 5 minutes): 1 point
  - Leave on time (within 5 minutes): 1 point
  - Participation: 3 points

7. Review the Syllabus

Grading

- Participation (20%)
    - zyBooks Participation Activities (5%)
    - zyBooks Challenge Activities (5%)
    - Team Labs (5%)
    - TopHat Questions (5%)

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    - TopHat Questions (5%)
    - 80% rule (max of 80% all weeks or 80% from week 3 on)

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    - TopHat Questions (5%)
    - 80% rule (max of 80% all weeks or 80% from week 3 on)
- Exams (50%: $\max\{0.5 \cdot E3, 0.2 \cdot E3 + 0.15 \cdot E2 + 0.15 \cdot E1\}$)
    - Pre-exam 1 – Friday, Sep 27 in lecture
    - Exam 1 – Thursday, Oct 10 (5:30 pm to 7 pm)
      $E1 := \max\{\text{Exam 1}, \frac{13}{15} \cdot \text{Exam 1} + \frac{2}{15} \cdot \text{Pre-exam 1}\}$
    - Exam 2 (E2) – Thursday, Nov 14 (5:30 pm to 7 pm)
    - Final Exam (E3) – Monday, Dec 16 (7:45 am to 9:45 am)

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- Programs (30%)
  - Top 24 of 30 ZyLabs (25%)
  - 2 Code Refactoring Assignments (5%)

7. Review the Syllabus

Flexibility Built-in for Everyone

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- Top 24 of 30 programs count towards grade.

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No Late Assignments Accepted

In extreme circumstances, submit what has been done and contact me ASAP.

7. REVIEW THE SYLLABUS

Academic Integrity

- Academic dishonesty or misconduct is taken very seriously by the university (see UW–Madison Academic Integrity policy).
- It is academic misconduct to submit someone else's work as your own.
- It is academic misconduct to help another student commit academic misconduct.

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Peer Help on Assignments

- You may not email, post on Piazza, or otherwise make it available for others.
- Process:
    - Before giving or receiving help, submit your work on zyBooks.
    - Only the code being debugged should be viewed.
    - After giving or receiving help, add file comment and submit to zyBooks.

The Rest (by week 3)

8. Determine exam conflicts and other accommodations requests.

- Exam 1 – Thursday, Oct 10 (5:30 pm to 7 pm)
- Exam 2 – Thursday, Nov 14 (5:30 pm to 7 pm)
- Final Exam – Monday, Dec 16 (7:45 am to 9:45 am)

Fill-out form on website if you have conflicts or require special accommodations.

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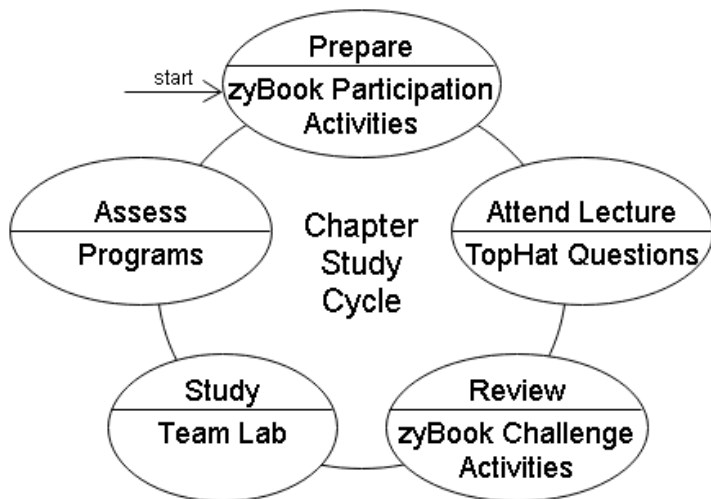- Final Exam – Monday, Dec 16 (7:45 am to 9:45 am)

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9. Install Java 8 and Eclipse on your computer.

- https://cs200-www.cs.wisc.edu/wp/install-eclipse/
- TAs and Peer Mentors can help if you are having trouble with the installation.

Study Cycle

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zyBooks Programs and Code Refactoring

Keys to Success

- Start early: try getting started the weekend before.
- Focus on a systematic approach to the problem.
- Test your work!

zyBooks Programs and Code Refactoring

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Unlimited submissions before Deadline

- Final submission is highest mark closest to the deadline.
- 10 minute delay between submissions.
- Not intended to be a test bench.

Getting Help

Getting Help

`HTTPS://CS200-WWW.CS.WISC.EDU/WP/HELP/`

Help!

- Tips for Solving Programming Problems
- Piazza Online Discussion
- Consultant Office Hours 1289 CS
  - MTWThF: noon to 5:30pm
  - MTWTh: 5:30pm to 8:00pm
  - MF: Appointments possible.
- Instructor Office Hours
- CS Learning Center
- Drop-in Tutoring (College of Engineering)

A couple more questions.

Which of the following is the best estimate for the amount of computer code that you have written prior to this class?

- **a.** 0 lines (I have never written any code)
- **b.** 1 – 200 lines (I have written some code, but not a lot)
- **c.** 201 – 2,000 lines (I have written several small programs)
- **d.** 2,000 – 20,000 lines
- **e.** > 20,000 (I have done a substantial amount of programming)

A couple more questions.

I am expecting to spend approximately this many hours per week on this class:

- **a.** Less than 4 hours/week
- **b.** 4 – 8 hours/week
- **c.** 8 – 12 hours/week
- **d.** 12 – 16 hours/week
- **e.** More than 16 hours/week

Appendix

References

Image Sources I

https://www.pearson.com/us/
higher-education/program/
Liang-Introduction-to-Java-Programming-Brief-Ver
PGM1730772.html

https://tophat.com/

https://piazza.com/

https://cs200-www.cs.wisc.edu/wp/syllabus/

Image Sources II

https://brand.wisc.edu/web/logos/

http://www.zybooks.com/

http://bigpicture.typepad.com/comments/
images/2008/07/14/dont_panic.png

http://phdcomics.com/comics.php?f=1583