

CSCI111: Fundamentals of Programming I

Professor Sprenkle

sprenkles@wlu.edu

<https://cs.wlu.edu/~sprenkles/cs111>

Survey Says...

- What year are you?
- Who has used a computer regularly?
- Who has used the Internet regularly?
- Who has made a web page?
- Who has written a program?
- Why are you taking this course?

What is Computer Science?

- The course title is fundamentals of *programming*, but it is in the computer science department

“Computer Science is no more about computers than astronomy is about telescopes.”

--Edsger Dijkstra

Dijkstra: Inventor of Dijkstra’s algorithm to find the shortest path in a graph

Fun Fact: Dijkstra was the first programmer in the Netherlands (March 1952)

Computer Science

- Study of problems based on *information* and solving the problem
- *Information* can take various forms
 - Numbers
 - Text
 - Lists, graphs, and more complex structures (CS112)
- 3 key questions
 - How can the problem be solved?
 - How well can it be solved?
 - Can the problem be solved?

CS == Complexity Science or the Study of Complexity

- How can the problem be solved?
 - Can you solve this problem?
 - Managing, manipulating information
 - Can you create a process to solve such problems?
- How well can it be done?
 - How quickly can you find solutions?
 - Do you have the “best” solution (often in terms of time and/or space)?
- Can it be done at all?
 - Is every problem solvable?
 - Is there a way to tell?

CS == Complexity Science or the Study of Complexity

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Only one of these questions involves programming. The others are problem-solving/thinking!

Computer Science Fields

Systems

- Architecture
- Operating systems
- Networks
- Distributed and parallel systems
- Databases
- ...

Software

- Compilers
- Graphics
- Software engineering
- Software testing and verification,
- ...

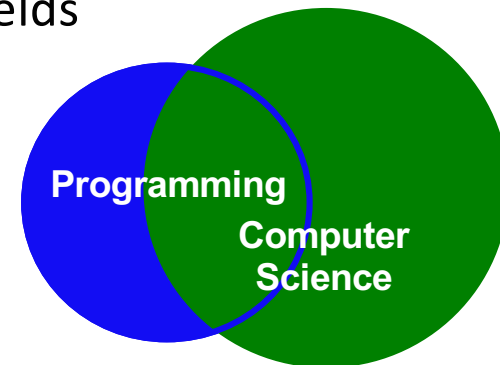
Theory

- Algorithms
- Theory of computation
- ...

Other

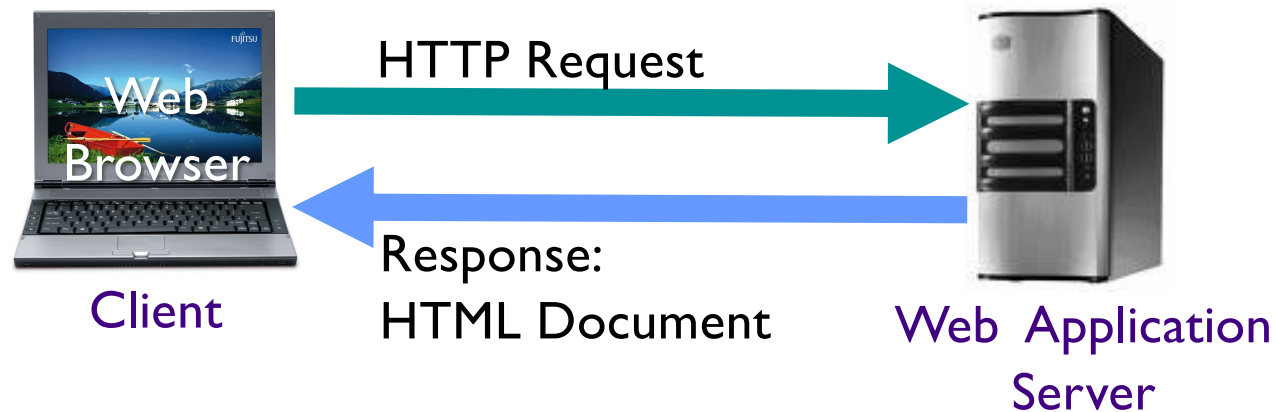
- Artificial intelligence
- Robotics
- Natural language processing
- Bioinformatics
- Visualization
- Data science
- ...

- Often research involves combinations of these fields
- Not just programming!
 - But programming is a tool to do much, much more!



What I Do as a Computer Scientist

- Interests: Software testing, empirical studies, distributed systems
- Focus: Automated web application testing



What I Do as a Computer Scientist

[Google](#) [Gmail](#) [Calendar](#) [Spreadsheets](#) [all my services »](#)

Google
Calendar BETA

[Create Event](#)

[Quick Add](#)

« **August 2006** »

M	Tu	W	Th	F	Sa	Su
24	25	26	27	28	29	30
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

Today Aug NaN - 27, 2006

0	1	2
7	8	9
14	15	16

Find the error(s)!

Find the Errors

Dear SARA,

You've spent \$0 in total as of September, 2010.[†] You're almost there!
Just spend \$0 more to receive your NY&C Reward!*

84 Items Sort By: Price: Lowest to Highest

Items per Page: 12 48 View all 1 2



TOTAL

Subtotal: \$12.95
Shipping: \$6.95
Total: \$19.9

Signature Collection
Shimmer Mist
Paris Amour
~~\$14.00~~ Now \$4.00
Limited Time Only! Save Over 70%

Signature Collection
Shimmer Mist
Moonlight Path
~~\$14.00~~ Now \$4.00
Limited Time Only! Save Over 70%

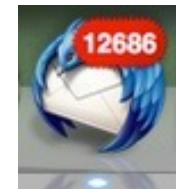
Signature Collection
Shower Gel
Exotic Coconut
~~\$11.00~~ Now \$2.75
Special Savings – Save over 60%

Signature Collection
Shower Gel
Cotton Blossom
~~\$11.00~~ Now \$2.75
Special Savings – Save over 60%

Qty: 1 Add to Bag

Qty: 1 Add to Bag

Qty: 1 Add to Bag



Payment details

The total amount that will be debited to your credit card is \$100.36 for 52 weeks, plus \$10.00 for the tip, for a total amount of \$110.36

Total Cats in Household

Share the number of cats in your household and earn 100 points!

How many cats are in your household?

- 1
- 2
- 3
- 4
- 5+

Submit >

 Now 50% Off

1 item in bag

Subtotal: \$27.47

You're **\$NaN** from **FREE SHIPPING**

\$0 

\$NaN

[KEEP SHOPPING](#)

[VIEW BAG](#)

[FNAME] enter to win \$10k for your charity today with our Favorites Givea...

Invalid SQLExec update for this type of PeopleCode program. (2,146) NY_SNDEMAIL_WRK.SENDMAILFIELD.FieldFormula
Name:validatePIN PCPC:15071 Statement:181
Called from:SUP_OB_USR_ATTR.SUP_OB_VENDOR_ID.FieldChange Name:Check_Std_Id_Num Statement:38
Called from:SUP_OB_VND_WRK.STD_ID_NUM.FieldEdit Statement:18

SQLExec commands with UPDATE, INSERT, or DELETE statements are only allowed in SavePreChange, SavePostChange, and Workflow type PeopleCode programs.

Prevent this page from creating additional dialogs

500 Internal Server Error

OK

Sorry, something went wrong.

A team of highly trained monkeys has been dispatched to deal with this situation.

If you see them, send them this information as text (screenshots frighten them):

```
APCGX7o5ykoEOKrfXRNISlhLbvGqo-1tQ3YY4JW3rddyXWwXjkTHTyK2  
mIDXuGB5S9DMmVtN5GqUuctxdVkvRnBPFAOjfydg_5BANHOlk6-KML85  
aev_MYUUr5Z8MC_XL7baMExDc8V2eLpy7z_djiLCL0BlGOYuSgH8IA4M  
fCgR_j3VENKolhrsUOHo9IMaQ1KmIPQtePg-C84nP3BAJgXix6vDSwit  
fjqu4TgAJHTON0_g5HIB2XVhEYeywp2-ownIX8BAVHM9QR8XOCkaz6M  
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ef38iwTkd6iRKEeTueUSKVXil1ID13UbSMHhZKYC-infX47nuF2u0xb  
xW2m09TJSQv2LLTN-9ehvS2fYla6iyt--HYEZPM_CKpuiCvFXmYXTTj  
QhD3JS-s_WhoFpBgagHc_BdyWgGf11yJw6Nw1wk5VBVLJs20JwLenLb-  
AD3WNXuFnDI5Ctg3COWtVg9587kBbr5141_FjGLEAJ3_Lp7zhZWeH9Zy  
EaahDYx2Yzby9kiZvlT6qkU9vx4hAHM_bTcTKUOSF-aAmgc6VYB_NDBL  
ujliZvkrXNMVpo-sQdLD5UEMv2RHhoq6QoPmgJ8Fc4I40EH5RQ2mHOHy  
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9MWU16cNuTa2k2_5mYJ2QX6CYKRO0U51oPq9jaIFJBFrMXGet-GZMXQy  
HEZg4yAQ2e28ubLDPXRWYrVfDw2-PlOY9w9Zi9ceh9gWBNZabvCOUKL  
gBclwegBBeOPM2thjdiKNWbgBcfrDBlyW2tX6mBhCKBCglzyT9drvLw  
cxcX150xSUyTxqlzV2Dwy3-MQuCpdPCEPxxZK3LMGEdgUhiNkwVBMH8oB  
SVkEknRycCCG2XtpbDSBN1bUGzMDh_08JhlcZ2IU7EOLememxGzqI64L  
xWLAfQgZ2aK1yuOOYwF80o974gw-pugZPhfVPCa5FN-5taBtDCMUczj-  
KQK6sAoS_eVpVv9FzOmBYa-XYMuKHhBO58Jb5x-X8xvCpL0azXP2q2g5  
1tqdJ30NzdkyfhIJGAJKoIFCYyKm_ZJ0JfQdJF0qTr7hsigSgAyGKTU  
IOBZV0coFRtAFia8elkAL6k5Px63uzK4VvUzYbvzFF1HacKt43qYtpY  
YhC844wGO1Oyo---mtYqtIxL2cdumfKYrRbeGviEwGzhI7aXdPpZWMt  
BYSxzBLIX4euU3XQYj_tjPPVUGr11MpnkKtAlaQPKME7TVCaF4-XAzZh  
nND9fjU3004dFTSVs5yFdp3JBuJdW1eu20jakXc8spyzj8Hpe16gRyr  
NUIsXhpckm21W4GxulZtVU-MCsGfBiWDBWQj35uTGNTvFk7eWqIAqkR7
```



Jan 12, 2024

Sprenkle - CSC1111

14



We're having a really bad day.

The Unicorns have taken over. We're doing our best to get them under control
and get GitHub back up and running.

[Contact Support](#) — [GitHub Status](#) — [@githubstatus](#)



My Research Interests

- Emails

Review Your Recent Purchases

o

write a review

a

write a review

u

write a review

From Kroger <noreply@kroger.com> ☆

Subject Your null Comments Have Been Received

To Sara Sprenkle ★

Cash back earned as of last statement: \$31.69
Total cash back since activation: \$96.0
[+Show Offer Details](#)

Digital Humanities

AGP Browse ▾ Interactive Maps ▾ Featured Graffiti Resources ▾ About the Project ▾ Search for Graffiti Search

The Ancient Graffiti Project

A digital resource for studying the graffiti of Herculaneum and Pompeii

City ▾

Insula ▾

Property ▾

Property Type ▾

Street ▾

Drawing Category ▾

Writing Style ▾

Language ▾

2124 results found Page 1 of 11

Export as EpiDoc Export as JSON Export as CSV Print

Sort by Relevance ▾ View 200 ▾

1 2 3 4 5 6 7 > →


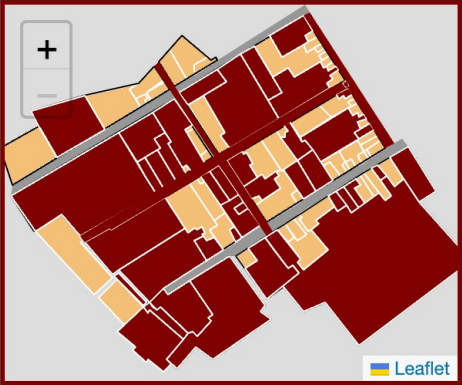
Graffito

Graffito: Mus nequa(m)

Translation: Mus never(?)

City: [Herculaneum](#)

Findspot: [House of the Wooden Screen/Partition \(III.11\)](#)



Practice: Introduction to Stoichiometry

Question 1 of 10: For the following reaction:



what mass in grams of H_2O is needed to react with 652.42 g of CO_2 ?

- a. 1593.81 g
- b. 267.066 g
- c. 1594 g
- d. 267.07 g



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MEET SOME MORE COMPUTER SCIENTISTS

Katie Yurechko '23



Jan 12, 2024

Sprenkle - CSCI111

- Computer Science and Philosophy (politics focus) double major
- W&L's first Marshall Scholar
 - Fully funds graduate study in the UK
- Published paper: ["You Can \(Not\) Say What you Want: Using Algospeak to Contest and Evade Algorithmic Content Moderation on TikTok"](#)

PhD Students

On the academic job market!



Hammad Ahmad '19
Michigan: Software Engineering

Defended her thesis in December 2023!



Sarah Anne Troise '19
**CMU: Engineering and
Public Policy**

Lucy Simko '11 and Camille Cobb '12



Worked for the Dept
of Defense on
Cybersecurity



SECURITY & PRIVACY
RESEARCH LAB
UNIVERSITY of WASHINGTON



Now faculty at
University of Illinois
Urbana-Champaign

Example publications:

- Defensive Technology Use by Political Activists During the Sudanese Revolution
- What Makes People Install a COVID-19 Contact-Tracing App?
- Would You Rather: A Focus Group Method for Eliciting and Discussing Formative Design Insights with Children

W&L Alumni at **amazon**

Software Engineers



Rinn Joireman '21



George Barker '20

More alumni: Tom Wadlow '99, Jamie White '17, Alex Cantrell '19

Patrick Ozark '17



MD/PhD Student at
University of Utah School of Medicine

Formerly: Bioinformatician at St. Jude Children's Research Hospital

Computer Science and Law



Christyann Pulliam

- CS and **Political Science** major
- **Law Degree** - Wake Forest
- Patent Examiner at the US Patent and Trademark Office

Jan 12, 2024 ➤ **Focus: AI, DB apps**



Julianne Campbell '18

- Computer Science Major
- **Law Degree** – Vanderbilt '21
- patent litigation support in electrical and computer technologies

Samantha O'Dell '15

- Computer Science and English double major
- Technical Writer at Google



Laurie Lee '22 Tech Writer at Salesforce



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And many more!

- You can see where our graduates have gone after graduation:

<https://my.wlu.edu/computer-science-department/after-graduation>

- Microsoft, AT&T
- Fulbright Scholar
- Allstate, Capital One
- Red Ventures
- ...

Erich Geist



food banks

We use data analytics, computer systems, servers, programming, network and database administration all the time to provide the data necessary to inform our donors, government officials, advocates, and the general public about our mission to feed the hungry.

Without good computer science...there is no food.

My Bio



- From Dallastown, PA
- Education:
 - B.S., Gettysburg College
 - M.S., Duke University
 - Ph.D., University of Delaware



My Roommates



Jan 12, 2024



Spren

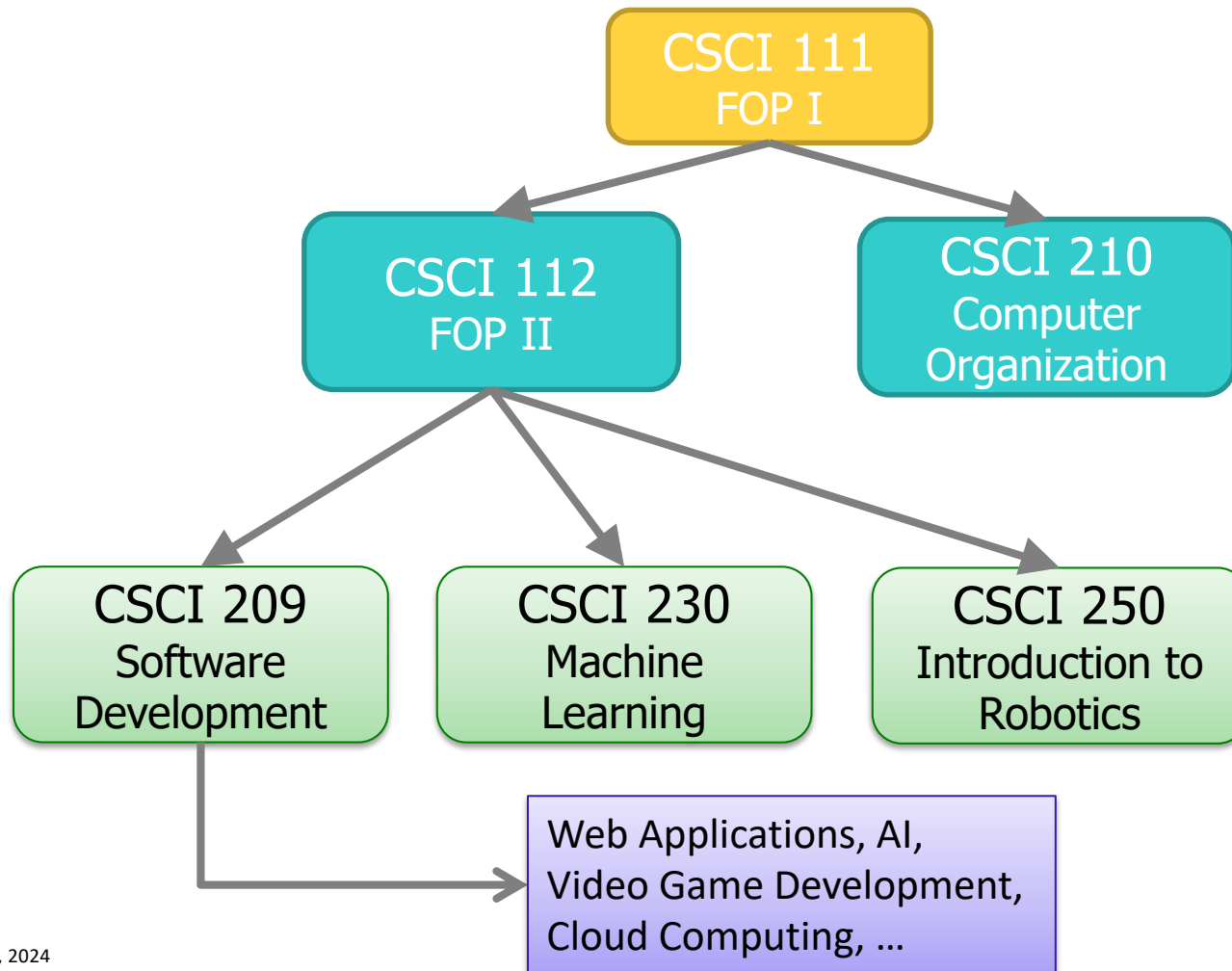
Your Bios

- Where you're from
- Your year
- A fun fact

What to Expect from this Class

- First programming course
- Lots to learn!
 - Introductions to a lot of new ideas
- Different way of thinking
 - Similar yet different from math
 - May get stuck but ask for help!
- Writing some basic programs
 - Foundations for more complex, sophisticated code
- Great power, great responsibility

Where You Can Go From Here



Class Details

- Course web page
 - <https://cs.wlu.edu/~sprenkles/cs111>
 - Check schedule frequently for updates
- Monday, Wednesday, Friday classes
 - Slides posted after class, in PDF format
 - Don't copy down slides verbatim
 - A lot isn't on the slides
 - Use PDF slides later to review
- Tuesday labs
 - "Pre-lab" assignments in the textbook, due *before lab on Tuesday*
 - Programming projects due at the *beginning of class on Friday*

Classtime

- Classes are in-person
- Classes will be recorded on Zoom and posted in Yuja on Canvas
- If you're not feeling well, you can attend the class on Zoom **BUT** that should not be a frequent occurrence

Class Details

- 3 Exams
 - 2 Exams (see schedule online for dates)
 - Final Exam
- Discussion of broader issues in CS
 - Articles about computer science's effect on everything
 - Get big picture of CS
 - Write up on Canvas, due **Thursdays by 11:59 p.m.**
 - Discussion Friday
 - Opportunities for extra credit for finding, reading, summarizing additional articles

Instructor Responsibilities

- Keep your interest in CS
- Prompt, constructive feedback on assignments
- Office hours: Zoom and in-person
 - Wednesdays: 2-4 p.m.
 - Thursdays: 10:30-11:30 a.m., 2:30-4 p.m.
 - Email for appointments at other times
- Goal: respond within 24 hours to emailed questions

Student Responsibilities

- Outside of class:
 - Review entire syllabus online
 - Check W&L email and course web page frequently for updates
- During class
 - Attend and participate in class and lecture
 - Mandatory attendance
 - Be respectful to other students
 - Arrive promptly to lecture/lab
 - Bring your notes and handouts
 - Turn off cell phone

**Be patient, flexible, and
learn from mistakes**

Textbook

- Online textbook
- Supplement to the material
 - Different perspective, additional practice problems
- Register for the class
 - Instructions on course schedule page

Consequence: my lecture slides and handouts and your notes are very important

- Reference *frequently*
- **Bring with you to lab!**

Where should I go for X?

- **Web Site**

- Slides
- Assignments
- Example programs
- Readings, e.g., the textbook

- **Canvas**

- Recordings from class
- Zoom links (office hours, class)
 - Office hours – always online
 - Zoom for class if you're sick
- Discussion forum
- Occasional assignments
- Some class handouts

Looking Ahead

- Tuesday is our first lab!
 - We'll get you started for the semester