What would the ideal Computer Science curriculum look like if Computing For Social Good were integrated into it?

Part 2: Enter your group's notes from the open data conversation.(below)

Find your Group Number Below and write in your group's ideas
Each Group is at the start of a new page below

Group 1:
- Integrate computing for good across ACM 2020 guidelines instead of being a separate knowledge area
- Writing courses on society, ethics based in the CS department
- How to squeeze this into the existing content that we have to cover in intro courses?
- Multi-year themes supported by faculty across individual courses (e.g., align projects across courses with problems in global climate change)
- Working in an interdisciplinary way with other departments (e.g., com, international service) that have similar courses to have discussions of computing & society
- Advisory board / network of people outside the university - stakeholders that students are accountable to
- Provide visibility for good role models that provide seminars, guest lectures, etc
- Members: Amanpreet Kapoor, Charles Wallace, Alex Godwin, Dennis Asamoah Owusu, Matthew Sun, Rick Blumenthal

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- Database: joining multiple datasets, answering correlation questions based on dataset type (e.g., correlating to community benefits, housing, dispatch locations)
- Web programming, Graphics, or Visualization: create a dashboard in d3.js
- CS2: JavaFX UI for analysis
- CS2: Pulling location imagery from Google Maps through an API
- CS1: Parse and aggregate by incident type
- CS2 / Algorithms: Pathfinding, Graph Analysis, Ford Fulkerson
- Software Engineering / Capstone: Requirements analysis with a stakeholder
- Members: Matthew Sun, Rick Blumenthal, Dennis Asamoah Owusu, Alex Godwin, Jean Salac, James McGuffee

Group 2:

We discussed about higher level changes to the curriculum to incorporate SG components from beginning to end. Main points were:

- Introduce SG and sociological elements from early on, introducing ethics in CS and similar topics in Introductory courses.
- Sprinkle SG components in all major CS courses by changing/tweaking the learning objectives and assignments.
- In higher-level courses
  - Include a project-based curriculum in courses where students are working on real problems with tangible prototypes/deliverables
  - Encourage interdisciplinary collaborations with other departments to help solve challenging problems by integrating diverse perspectives
  - Support community partnerships for real-world impact

Overall goal:
Broaden student perspective of what CS can do and attract a diverse population of students in CS. Change the prominent impression that studying CS is about "coding in a cubicle" and making big bucks working in the industry (Silicon Valley).

DIfferent places we could use the data: data structures, algorithms, HCI, database systems, software engineering, mobile applications, data science

CS 1: Opening files, documentation, visualization
Data structures: Stable sorting
Software engineering: documentation, apps
HCI: Applications and systems for diagnosis, mobile applications
Data science: visualization, interpretations, predictions, diagnosis, patterns, cleaning the data
Mobile application development: apps
Database systems: queries, finding patterns
Analysis of algorithms: searches,

Group 3:

Overall goal : curriculum program → relate to the application/social needs of the local community

Difficult in some courses to integrate social good into some courses (like compilers).

Socially relevant projects integrated into specific courses - doesnt have to be all (like capstone, flexible project oriented courses)

Pressure -- ACM curriculum - more and more technical stuff ., then trying to add more of the social good stuff.. How do we do it?

Universities already has experts in social sciences and why not take advantage of that - leverage the expetise.

Dont shy away from hard topics (English, etc)

Using opiod data (Cincy Insights):

Requirements - need an API to get to the data through queries.

CS1/CS2 -- use this data as part of projects (static vs. dynamic?)

Not enough social data parameters - income data.

Marry that with other datasets in the same regions.

Use this data for simple CS1 projects.

Use data specific to your region/city, make connections to your local community

Could impact students in general, but might make huge impact in a couple of students who could go on make major changes long-term.

A variety of projects across multiple CS courses (design, UI, DB)

Group 4:
- * (also from Group 1) Running examples through multiple levels of courses
    - projects and contexts
- More systemic than professor/instructor based
- Better materials to support social good
    - Datasets
    - Better examples in textbooks
- Potential positive outcomes
    - Spark excitement for socially aware projects → greater self selection into these
    - Open sourced social good projects

CS1: pick a topic to teach (iteration, lists/arrays, conditionals) and integrate data to conclude meaningful results

(Really cool dataset btw)

Group 5:

If the faculty don't model the outcome, we will not ever get student buy-in. It must be embedded in the program .. BUT -- so does everything else. What do we give up, trade off to teach these topics?

Try very small local problems the first year, that may or may not impact anyone. As the student moves thru the program, the projects get larger and more meaningful and impactful. When they get to the capstone, they have the idea down

Create course / program outcomes that reflect this idea.

Ask external faculty to create 10-15 min videos on how CS impacts their profession. Make a YouTube channel??? Or post links on LMS for every class.

The Big Project Idea

Collect response time (arrival / create times) report to elected officials to advocate for more/different resources. Constituents can hold elected officials responsible, Look at distances traveled for example

Is there data missing? (is heat map normalized for population density for example)

What isn't there? Assumptions being drawn? Ie wealthy people who self transport / not in 911 system are not represented.

Loops activity find differences between time, take average by council area, make a report.

Have a two part course: discussion activities and coding activities