Georgia Institute of Technology
CS6150 Computing for Good (C4G) Course Syllabus

OMSCS Spring 2022, College of Computing
Delivery: 100% Web-Based
Dates course will run: January 8, 2023 – May 2, 2024

Instructor Information

Course Instructor: Santosh Vempala	Email: vempala@cc.gatech.edu
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General Course Information

Description

How can computing help make the world a better place? Can we avoid wars, alleviate homelessness, and improve global health using computers? What technical challenges arise, and what humanistic issues must be considered and understood in the process? In this C4G course, we explore problems faced by developing countries and under-served populations from a computing perspective. The course will be project-centered, with teams of students choosing project topics early in the course and working towards a deployed solution by the end of the course.

Prerequisites

Graduate course in any **ONE** of the following topics: **(A)** Databases, **(B)** Networking, **(C)** Logistics, **(D)** Web development, **(E)** Global Health, **(F)** Technology and Society, or **(G)** User Interface Design.

Course Goals and Learning Outcomes

Once completed, the students should have the following capabilities:

- Think about computing for social good and all its complexities
- Undertake a significant, semester-long project working on a team: Identify a problem/project/organization that you are passionate about; design, evaluate and deploy a solution
- Develop a rudimentary understanding of a domain of social importance
- Develop an understanding of the key issues in humanitarian computing, including sustainability, resource availability (or lack thereof), novice user design, and diversity in user and stakeholder populations

Course Materials

Course Text

Geek Heresy by Kentaro Toyama (please click the link, then scroll to page bottom for digital versions)

Additional Materials/Resources

All other required and recommended reading will be provided as PDFs on Canvas. Outside materials and technologies required are dependent on each project's individual needs.

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Course Website and Other Classroom Management Tools
All course materials and videos are located on Canvas.
C4G Public Website: c4g-dev.cc.gatech.edu

Course Requirements, Assignments & Grading
Assignment Distribution and Grading Scale*

Assignment	Weight	Description
Assignments	**5%**	General category for individual assignments that do not fit neatly into our other categories.
A1-SkillsAndInterestsExercise	1 pt	Indicate your domain interest, potential partner organization if you have one in mind, and your set of tech skills making you suitable for that project.
A2-InitialGoals	2 pts	Your initial goals for how you can contribute to your team's solution.
A3-TechSurvey	4 pts	What technology solutions exist or have been tried in your domain of interest.
Lecture Assessments	**10%**	Quizzes at the end of each lesson.
Midterm Paper	**10%**	A scholarly paper with references and citations.
Project-Team	**30%**	Each assignment in this category is submitted as a team (one submission per team).
P1-Team Formation	3 pts	Form a team, listing all appropriate skills and experience of team members. If you prefer to go solo, please discuss it with a TA.
P2-Goals & Deliverables	5 pts	Select partner organization. Discuss their needs and formulate a project. Make a list of goals and list of deliverables. Create a plan to engage the partner organization and any other stakeholders.
P3-Team Web Page	5 pts	Create a project web page and announce it to the class.
P4-Mini Presentation	5 pts	Present a project plan to a TA. Create slides detailing team, partner organization, project goals, and strategy.
P5-Initial Evaluations	10 pts	Create a survey and evaluate the initial prototype with the partner and stakeholders.
P6-Demo	10 pts	Present functional demo to TA and implement TA feedback.
P7-Field Evaluation	10 pts	Evaluate the deployable version with the partner organization and make changes based on feedback. Deploy or produce a deployment plan. Create a sustainability analysis.
P8-Final Presentation	10 pts	Create a slideshow and video recording.
P9-Developer Documentation	10 pts	Create a doc promoting sustainability for the partner organization. It should facilitate processes such as installation to a hosting provider, etc.

P10-Final Report	10 pts	Include the problem being addressed with detailed background information about users and stakeholders, current approaches, their shortcomings, and challenges to be addressed. It should then motivate and present the solution developed, its evaluation and deployment, and sustainability analysis.
Project-Individual	**35%**	Submit a paragraph describing your contribution to each Team Submission assignment listed below.
I1-Team Formation-Individual	5 pts	(see above)
I2-Goals and Deliverables	5 pts	(see above)
I3-Team Web Page	5 pts	(see above)
I4-Mini Presentation	5 pts	(see above)
I5-Initial Evaluation	5 pts	(see above)
I6-Demo	5 pts	(see above)
I7-Field Evaluation	5 pts	(see above)
I8-Final Presentation	5 pts	(see above)
I9-Developer Documentation	5 pts	(see above)
I10-Final Report	5 pts	(see above)
Peer Project Evaluations	**10%**	Provide feedback to your classmates regarding their Team Projects.
Extra Credit	**8.5%**	Maximum extra credit percentage added to final grade.
EC-PeerEvaluations	4.5%	(see above)
EC-BugBounty	2.0%	(see above)
EC-UI-Suggestions	2.0%	(see above)

* Note: Canvas points for specific assignments within a category may not equal the percent allocation for the category. For example, the total Canvas points of all assignments in the Project-Team category will exceed the % number of '15' for that category. The Canvas points for a specific assignment are used to indicate relative weighting *within* a category.

Grading Scale
Your final grade will be assigned as a letter grade according to the following scale:
A   90-100%
B   80-89%
C   70-79%
D   60-69% F 0-59%

Assignment Due Dates
All assignments are due at 11:59:00pm EST unless otherwise noted. All assignments are due per the Eastern Standard Time Zone (EST). Eastern Standard Time is UTC -5. Eastern Daylight Time is UTC -4. We will not accept assignments submitted late due to time zone issues. You should update your canvas to account for EST if you are in a different time zone. There are no exceptions.

Late and Make-up Work Policy
There will be no make-up work provided for missed assignments. Of course, emergencies. (illness, family emergencies) will happen. In those instances, please get in touch with the Office of the Dean of Students. The Dean of Students is equipped to verify emergencies and pass confirmation on to all your classes. For consistency, we ask all students to do this in a crisis.

Technology Requirements and Skills
Computer Hardware and Software
- High-speed Internet connection
- Laptop or desktop computer with a minimum of a 2 GHz processor and 2 GB of RAM
- Windows for PCs OR Mac iOS for Apple computers.
- Complete Microsoft Office Suite or comparable and ability to use Adobe PDF software (Install, download, open, and convert)
- Mozilla Firefox, Chrome browser, or Safari browsers (Chrome required for onboarding quiz)

Canvas
This class will use Canvas to deliver course materials to online students. ALL course materials and quiz/discussion assessments will take place on this platform.

Proctoring Information
To verify the identity of all GT online students, all online students must complete the on-boarding quiz that uses Honorlock. Honorlock is utilized for student identity verification and to ensure academic integrity. Honorlock provides student identity verification via facial and ID photos. You may also be asked to scan the room around you. The on-boarding quiz will be a practice quiz that will not affect your grade in the course. You can take the on-boarding quiz as many times as you want. A human reviews all potential violations. The Honorlock support team is available 24/7. While Honorlock will not require you to create an account, download software, or schedule an appointment in advance, you will need Google Chrome and will need to download the Honorlock Chrome Extension. Information on how to access Honorlock and additional resources are provided below. You can also access Honorlock support at https://honorlock.com/support/.

Course Policies, Expectations & Guidelines
Communication Policy
You are responsible for knowing the following information:
1. Anything posted to this syllabus
2. Anything emailed directly to you by the teaching team (including announcements via Canvas and Ed Discussions) 24 hours after receiving such an email or post.

Because Canvas and Ed Discussions announcements are also emailed to you, you need only check your Georgia Tech email once every 24 hours to remain updated on new information during the semester. Georgia Tech generally recommends students check their Georgia Tech email once every 24 hours. So, if an announcement or message is time sensitive, you will not be responsible for the announcement content until 24 hours after it has been sent.

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Online Student Conduct and (N)etiquette

Communicating appropriately in the online classroom can be challenging. To minimize this challenge, it is important to remember several points of **"internet etiquette"** that will smooth communication for both students and instructors:

1. _Read first, Write later_. Read the ENTIRE set of posts/comments on a discussion board before posting your reply to prevent repeating commentary or asking questions that have already been answered.
2. _Avoid language that may come across as intense or offensive_. Language can be easily misinterpreted in written, electronic communication: review email and discussion board posts BEFORE submitting. Humor and sarcasm may be easily misinterpreted by your reader(s). Try to be as matter-of-fact and professional as possible.
3. _Follow the language rules of the Internet_. Do not write using all capital letters because it will appear as shouting. Also, the use of emoticons can be helpful when used to convey nonverbal feelings. J
4. _Consider the privacy of others_. Ask permission before giving out a classmate's email address or other information.
5. _Keep attachments small_. If it is necessary to send pictures, change the size to an acceptable 250kb or less (one free, web-based tool to try is picresize.com).
6. _No inappropriate material_. Do not forward virus warnings, chain letters, jokes, etc., to classmates or instructors. The sharing of pornographic material is forbidden.

NOTE: _The instructor reserves the right to remove posts that are not collegial and do not meet the Online Student Conduct and Etiquette guidelines (above)._

University Use of Electronic Email

A university-assigned student e-mail account is the official university means of communication with all students at the Georgia Institute of Technology. Students are responsible for all information sent to them via their university-assigned e-mail account. If a student chooses to forward data in their university e-mail account, they are responsible for all information, including attachments, sent to any other e-mail account. To stay current with university information, students are expected to check their official university e-mail accounts and other electronic communications frequently and consistently. Recognizing that some communications may be time-critical, the university recommends that students check electronic communications at least twice a week.

Plagiarism & Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. All students enrolled at Georgia Tech and all its campuses are to perform their academic work according to standards set by faculty members, departments, schools, and colleges of the university; and cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied. For information on Georgia Tech's Academic Honor Code, please visit https://policylibrary.gatech.edu/student-life/academic-honor-code.

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity. This office will investigate the incident and identify the appropriate penalty for violations.

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Accommodations for Students with Disabilities
If you are a student with learning needs that require unique accommodation, contact the Office of Disability Services at 404-894-2563 or https://disabilityservices.gatech.edu/ as soon as possible to make an appointment to discuss your individual needs and to obtain an accommodations letter. Please also e-mail me as soon as possible to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement
At Georgia Tech, we believe it is essential to strive for an atmosphere of mutual respect, acknowledgment, and responsibility between faculty members and the student body. See the Honor Code at https://policylibrary.gatech.edu/student-life/academic-honor-code for an articulation of some basic expectations that you can have of me and that I have of you. Ultimately, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Subject to Change Statement
The syllabus and course schedule may be subject to change. Changes will be communicated via the Canvas announcement tool. Students must check Ed Discussions, email messages, and course announcements to stay current in their online courses.

Course Schedule

Week/Dates	Lessons	Readings	Deliverables
1 January 8	**Lesson 1: C4G and BLIS Introduction**	C4G BLIS: Health Care Delivery via Iterative Collaborative Design in Resource-constrained Settings	**A1-SkillsAndInterestsExercise Due**
2 January 15	**Lesson 2: BLIS Challenges and System Design**		**A2-InitialGoals Due**
3 January 22	**Lesson 3: BLIS Deployment & Results**	Information Systems and Developing Countries: Failure, Success and Local Improvisations	**P1-Team Formation Due**
4 January 29	**Lesson 4: Technology's Law of Amplification (Kentaro Toyama)**	Geek Heresy: Rescuing Social Change from the Cult of Technology	**A3-TechSurvey Due**
5 February 5	**Lesson 5: V2V Introduction & Challenges**	Design and Deployment of a Blood Safety Monitoring Tool	**P2-Goals & Deliverables Due P3-Team Web Page Due**
6 February 12	**Lesson 6: V2V Design & Deployment**		**P4-Mini Presentation to TA Due**
7 February 19	**Lesson 7: V2V Feature Walkthrough**	ICT4D 2.0: The Next Phase of Applying ICT for International Development	**P5-Initial Evaluation Due**
8 February 26	**Lesson 8: Designing Technology to Improve Health and Wellness (Rosa Arriaga)**	A Text Message a Day Keeps the Pulmonologist Away	**Midterm Paper Due**

9 March 4	**Lesson 9: Project Guidelines & Metrics**		
10 March 11	**Lesson 10: LifeNet & Reliable Connectivity**	LifeNet: A Flexible Ad hoc Networking Solution for Transient Environments	**Project Peer Evaluations Due Extra Credit Due**
Spring Break March 18-22	**Lesson 11: LifeNet Evaluation & Deployment**	Sustainability Failures of RuralTelecenters: Challenges from theSustainable Access in Rural India(SARI) Project	
11 March 25	**Lesson 12: Ending Homelessness (Protip Biswas)** **Interview with Protip Biswas**		**P6-Demo Due**
12 April 1	**Lesson 13: Digital Threats to Democracy (Mike Best)**		**P7-FieldEvaluation Due**
13 April 8	**Lesson 14: Lessons from Digital Green (Kentaro Toyama)**		**P8-FinalPresentation Due**
14 April 15	**Lesson 15: History of C4G**		**P9-DeveloperDocumentation Due**
15 April 22	**Finals/Term End** **April 25-May 2**		**P10-FinalReport Due (includes evidence of completed hand-off)**
16 April 29	**TAs complete grading**		
17 May 6, 11:59 AM	**Grade submission deadline**		