University at Albany

INF 465 : Senior Capstone in Informatics Fall 2019

Thursday 4:15–7:05 HS 0208

Instructor	Cristyn Magnus, Ph.D.
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Github	`https://github.com/inf465`

1 Course Description

Students create teams, each representing their specialization, to solve a current technology challenge. The purpose of this course is for students from all the different Informatics tracks to come together and work on a real world Informatics related problem. **This course will require completion of 100 hours in a field placement.** During their field placement students will work as part of a team comprised of their peers from other Informatics tracks to complete a capstone project. The project itself will be dictated by the individual needs of the placement and the strengths of the team. The Instructor of I INF 465 will act as a mentor to the student teams and help to guide them through their projects. May be repeated for credit up to a total of 6 credits with permission of department. Prerequisite(s): Informatics seniors only and instructor permission.

2 Capstone Project: *Listening Here*

You will work in teams on the development of *Listening Here*, a geo-located mobile web-app for creative and mindful listening (`http://listeninghere.org`). Some of the projects your team might be working on include: programming, web development, tutorial creation, database usage, graphic design, and testing. Each student whose work is integrated into the live app will be credited and will be able to include this experience on their CV.

You are expected to use your available resources (your expertise, your colleagues' expertise, your problem-solving skills, your research skills, etc.) to solve the technical problems you are assigned. Push yourself, but know your limits. If you find you have hit too many dead ends, consult the instructor.

3 Learning Objectives/Outcomes

At the end of this course, you should:

- have an awareness of considerations involved in project development
- be able to assess the technical needs of a project, research available tools, and choose the most effective tools for that project
- be able to break a project into discrete tasks and schedule those tasks with a goal in mind
- be able to work with a team to implement components of a large-scale project
- be able to consider the real-world issues of labor, time, and team skills to develop appropriate goals and scope for projects

- be able to design and build elements of a progressive mobile web app
- be able to test and debug an app, including documenting situations in which particular features do/don't work
- be able to communicate about your project, your research, and your development process verbally and in writing

4 Course Activities

4.1 Getting to Know the Project

Early in the term, we will have two activities that will help orient you towards the project.

- An initial report on using the app prototype
- A sound mapping workshop on deep listening and acoustic ecology with artist Stephanie Loveless

4.2 Field Placement

You are required to do 100 hours of active work towards the project. You will document this work in several ways:

- Track hours. Use an app like hoursTracker `http://www.hourstrackerapp.com/` or keep track of them in a notebook or on a spreadsheet. You'll need to provide an update to your hours every week at the meeting. Normally, you can just tell me your hours every week and I'll trust you, but if they start to look inflated, I'll ask to see a more detailed accounting.
- Git commits. Every discrete, doable task should result in a git commit. Your commit subject should be 50 characters or less and sum up the purpose of the commit succinctly. The commit body should provide more detail if necessary.
- Work that results in research, dead ends, blocks, and so on, should be documented in the wiki and formatted to be useful for yourself, your colleagues, and future 465 students.

UAlbany's semester length is highly variable based on where holidays fall. This semester, there are 14 weeks of class. This means you'll need to put in a bit more than 7 hours a week to be done by the end of class meetings. If you actively work during class, whether through meetings with colleagues or the instructor, or just co-working on a laptop, you may claim your class-time towards your field placement.

If you do not actively work on the project in class (e.g. you are working on things for other classes, or just hanging out socially), you may not claim those hours towards field placement. You may, however, leave early, *with the permission of the instructor*, if you don't need to meet with anyone else and you don't have work you can do in the classroom (i.e. your primary task for the upcoming week is sound mapping or you don't have a laptop). If you leave early but have not completed your weekly meetings, it will impact your meeting grade.

4.3 In-Class Activities

Attendance is crucial. We will follow an Agile project management philosophy. However, past experience is that many students will, unfortunately, *not* actively participate in scrum meetings, whether through shyness or concern that their work isn't far enough along. Agile requires transparency, so at least until all students are ready to participate equally if we try to hold a scrum meeting, part of the class period will be devoted to individual meetings with the instructor. Students will also be expected to meet with any other students whose work relates to their own to get up to speed with each other. Brainstorm, help each other out, do face-to-face meetings about how your different parts of the project will interact, etc.

Individual meeting: Part of every class period will be set aside for individual meetings. These are intended to be *extremely* fast meetings in which you report in, as you would with a scrum:

- What did you accomplish in the last week?
- Do you have any blockers?
- Are there obvious next steps?

If it seems like everyone is ready to have group scrum meetings, we might phase out individual meetings in favor of group meetings, which will be substantially more efficient.

Group meeting(s): Every week you should meet with one or more groups. We are *not* practicing TBL and your teams are not fixed. Who you need to meet with will be situational. You might fall in with the same group all semester, or you might find yourself moving between different groups as your work takes you in different directions. On a given class period, you may meet with multiple groups.

Here are some possible scenarios:

- Group = people working on the same problem as you. You'll need to share progress, determine near term goals, and decide who is going to do what tasks. The measur-

able product produced through this meeting will be fleshing out of your project management plan (this can be found in the project tab of the github repository).

- Group = people who you think can help you with a blocker. They might not be working on your same part of the project, but you know they did well in a related course or are good at general problem solving. The measurable product produced through this meeting will either be a plan going forward (added as notes to the appropriate card in your project management plan) and moving the card from "Blocked" to "In Progress." Or, if that doesn't result in a plan of action, it might result in a call for a larger group or for the instructor to get involved in brainstorming.

- Group = someone whose work is interfacing with your work (e.g. a front-end developer might need to meet with the back-end developer to talk about the API). The measurable product produced through this meeting will be documentation of the API in the repository's wiki.

4.4 Final Organization

It should go without saying, but there is no final exam. However, you should wrap things up and prepare them for the students who come after you. If you found that you had to ask the instructor for information at the beginning of the semester in order to orient yourself, the previous class didn't do their best at this task. Do better for the next class.

- Make sure your part of the repository is well organized.
- Make sure all the code that you have been working on is finished—the entire project needn't be finished, but if you're in the middle of creating a class, for example, if you can't finish the class, you should at least make sure all of the methods you have worked on work properly, that what they do will be clear to someone looking at your code for the first time, and that the methods that need to be added to the class are clearly documented.
- Read over your parts of the wiki and make sure they are effectively organized, clearly written, and contain all the information future students will need.
- Make sure the project management plan is fleshed out. You may have been using shorthand and relying on verbal face-to-face meetings to convey information during class. This is fine during the semester. However, all your assumptions about the tasks you leave for others in your project management plan entail should be written down on the cards.

Your final organization grade will be assessed based on the state of your parts of the repository at the end of the semester. If you are well organized throughout the semester, this

might not require much extra work at the end of the semester. You will share in responsibility for any parts that are worked on by other people—you may want to coordinate for a final once-over. If you are responsible for multiple parts of the repository, your final score will average scores for each part you contributed to.

4.5 Showcase

The iCEHC showcase is TBA in the TBA. You are not required to participate in the showcase, but you can participate for extra credit. However, we must reserve a table well in advance, so discuss it with the instructor early on if you would like to participate. Your extra credit will be based on the quality of your presentation. You may claim the hours spent towards the showcase as part of your field placement hours.

If you choose to present, you should create a poster that provides an overview of the project (for context) and describe a contribution you made to the project that you are proud of. A good poster is heavy on visuals (images, diagrams, etc.) and light on text (headings and bullets, not blocks of text).

5 Online Resources

Github: Github provides free cloud storage for the *version control* system Git. Git is the industry standard and it is important to be comfortable using it. We will be using Github instead of Blackboard for all course activity.

Github also provides a free project management tool that is useful for *agile* project management, which is one of the most common project management styles in contemporary computing. You will be practicing good project management habits as you develop your programming skills. Importantly, you will be integrating project management, programming, and version control into your workflow.
`https://github.com`

6 Assessment/Grading

Since there are few discrete assignments to grade, weekly grades will be based on:

- **Quality:** evidence of meaningful progress (If the progress you make is so slow, low quality, or unaccompanied by documentation of dead ends you've hit, that it looks like you've either lied about your hours or been extremely inefficient, your quality grade will be low, even if you put in the requisite field placement hours.)
  - Quality of work (producing things that work)
  - Quality of documentation (git commits, wiki/readme edits, etc. should be clear, succinct, and well organized. Failure is fine as long as you document the process: what did you try? how did it fail? etc.)
- **Quantity:** field placement hours worked/100
- Contribution to weekly meetings (show up ready, be clear, concise, and informative)

Weights: Grades will be weighted as follows:

Initial report	5%
Soundmapping workshop	5%
Quality $*$ Quantity	50%
Weekly meetings	20%
Final organization	20%
Showcase (extra credit)	10%

The quantity multiplier will be applied to the total quality grade, not maintained on a weekly basis. This means that, so long as you keep careful track of your hours and don't fall behind, you are free to work extra on weeks where your other classes are lighter and take things a bit easier, so long as you make at least some progress, on weeks when you have major assignments due in other classes.

Be careful if you choose to do this; the tendency for most students is to allow themselves to fall gradually behind, only to find themselves at the end of the semester without the field placement hours they need and a mathematical impossibility of making them up during the last few weeks of the semester. Falling behind by 1 hour a week will leave you needing to work 20 hours on the last week of the semester (8 for the week + 12 makeup), which you will *not* want to do just as every single class you are in is ramping up for the end of the semester. You will be better if you don't give yourself time off without a solid plan to make up the work on another week.

Your grades will not be posted publicly. You will be tracking your own hours and should have a sense of the quality of your work through weekly meetings. If you aren't sure about the quality of your work from weekly meetings, please talk to the instructor.

6.1 Privacy

Because of the collaborative nature of working on a long term project, your work in this class will be visible to everyone who participates in this project. We will be working in shared github repositories and your github username will be associated with everything you submit.

7 Policies

Attendance: Performance in weekly meetings is 20% of your grade. Showing up late is a gamble: if your team has opted for a scrum meeting and it is over, or if you arrive after all the one-on-one meetings are over, you will need to have a private meeting with the instructor later in the class period. If this happens, you will lose points for not being prepared at the start of the meeting. If you do not have a meeting at all, you will receive a zero for that week's meeting.

Your field placement tasks for the upcoming week will be determined during the class period. You will not succeed if you are unable to attend regularly. If something comes up, such as a health problem, family emergency, etc. you should inform the instructor ASAP and make arrangements. We will probably be able to come up with a remote-working alternative to weekly in-class meetings if your situation warrants it, but unless you engage in some kind of weekly check-in, you will almost certainly fall behind on your field hours and evidence of meaningful progress as well.

Computing Resources: Although the projects can be done on your own computers, problems with your system (hardware, software, network access, etc.) will not be accepted as excuses for late or missing work. Information Commons computers are provided in the UAlbany libraries for students with computer or network issues. Students are required to read the University at Albany Policy for the Responsible Use of Information Technology (`https://wiki.albany.edu/display/public/askit/Responsible+Use+of+Information+Technology+Policy`).

Email Policy: Instructors get a large volume of email. I will set aside time at least once a week to deal with it. The subject line should include the course number and a brief note of what you are emailing me about (e.g. "INF 465: appointment"). When time is set aside time to address student emails, a subject line filter will be used. Emails that do not contain "INF 465" in the subject line may end up in junkmail. If you attempt to contact

the instructor via email and did not include "INF 465" in your email subject line, any failure of communication that results is your responsibility.

Email is for emergency use only. Most communication should happen in person, either through in-class meetings or office hours.

Students with Disabilities:

Students with Disabilities: Reasonable accommodations will be provided for students with documented physical, sensory, systemic, cognitive, learning, and psychiatric disabilities. If you believe you have a disability requiring accommodation in this class, please notify the Director of the Disability Resource Center (`http://www.albany.edu/disability/`). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations.

In general, it is the student's responsibility to contact the professors at least one week before the relevant assignment to make arrangements. If you have a disability that affects you sporadically, it is a good idea to preemptively register with the disability office so that if you have a flare up, you will have already set up your safety net.

Incompletes and Requests for Re-evaluation:

Incompletes and Requests for Re-evaluation: Students must complete all requirements in order to pass the course. A grade of incomplete will be given only when circumstances beyond the student's control cause a substantial amount of course work to be unfinished by the end of the semester. Whenever possible, the student is expected to make extra efforts to prevent this situation from occurring. The instructor will be the sole judge of whether an incomplete is warranted. Final grades are computed based on the above formulas and are NOT negotiable. Per department policy, "students may not submit additional work or be re-examined for the purpose of improving their grades once the course has been completed and final grades assigned."

A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.

Withdrawal from the course:

Withdrawal from the course: The drop date for the Fall 2019semester is Mon, Sep 9 for undergraduate students. That is the last date you can drop the course without receiving a 'W.' The last day you can drop the course and receive a 'W' is Mon, Nov 4. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Announcements:

Blackboard: We will not be using blackboard for this course. Announcements will be posted on piazza.

We will not be using blackboard for anything else, so it is probably best to make sure you set your albany.edu email to forward if you are not in the habit of checking it regularly.

Weather Cancellations: Students are responsible for awareness of campus closure. You can get this information from various sources. For more information, see: `http://www.albany.edu/emergency/`.

You should share contact information with any classmates you may need to communicate with outside of class. Although the official weekly meeting will be canceled in the event of a weather emergency, you will still need to discuss next steps with your colleagues so you will have something to work on for your field hours in the next week.

Conduct: Students are expected to abide by UAlbany community standards. For more information, see `http://www.albany.edu/communitystandards/`.

8 Academic Integrity

Students are expected to be familiar with and abide by UAlbany's Standards of Academic Integrity published in the Undergraduate Bulletin.

Cheating will not be tolerated, and any student who engages in suspicious conduct will be confronted and sanctioned. If you cheat you will, at minimum, receive a failing grade on the affected assignment. You might receive a failing grade for the course or be subject to further disciplinary proceedings.

A (non-exhaustive) list of unacceptable activities is:

- Copying chunks of code without providing proper attribution, either in the wiki or the commit message
- Making claims in the wiki without citations (citations can simply be links to sources)
- Using an algorithm from a known source without citing that source in wiki or the commit message
- Lying to the professor about issues of academic integrity