Course website: The course has a website on Sakai where handouts and other documents will be stored. The site is on Sakai under the course name and section.

Course Description from Wake Forest Bulletin, 2016-2017:
192. Stem Incubator. (1h) An engaging and relevant introduction to STEM (science, technology, engineering, and mathematics) through creative exploration, collaboration, and computational problem-solving. Pass/Fail. May be repeated once.

General STEM Incubator Course Learning Objectives:
Please see http://college.wfu.edu/cs/humanitech-program/program-overview for an overview of the STEM Incubator program (also called "Humanitech") and its learning objectives.

This section of the STEM Incubator:
CSC192-B and CSC192H-B Digital Sound and Music
In this course, students will be introduced to the science of digital sound and music, including the way in which sound is changed from analog to digital form so that it can be manipulated by a computer. As students record and edit their own music and sound effects, they will gain experience with the hardware and software used in music production. Tools and systems used in the course will include sound cards, microphones, MIDI keyboards, synthesizers, samplers, audio editing software, and MATLAB.

Basis for Grade:
The grade for the course is either P (pass) or F (fail).

To receive a passing grade, students must do the following
• Each week, attend one hour regular class meeting and two hours of out-of-class meetings.
• Each team of students should make a weekly blog entry. Your weekly blog entry should state who attended your weekly out-of-class meetings and what was accomplished. Include design plans and implementations for your projects. Pictures, sound, and short videos are a nice addition to the blog entries. Partners should take turns doing the blog entries each week. (The mentors will be a blog as a team as well, giving an overview of what was accomplished during the week.)
• Attend class regularly (DON'T CUT CLASS!)
• Participate in the creation of assigned projects.
• Make submissions on Sakai as directed by the instructor.
• Exhibit the projects to other STEM students at midterm and at end of course.
Honor System
Wake Forest is an academic community that subscribes to an honor system. By accepting membership in this community, each student assumes the obligation to be trustworthy in all pursuits. Violations may be referred to the Judicial Council for investigation and determination of appropriate sanctions.

Special Needs
If you have a disability that may require an accommodation for taking this course, then please contact the Learning Assistance Center at (758-5929) within the first two weeks of the semester.
Plan in Event of Extended Campus Closing

Please note the following plan to be followed in the event that the Wake Forest campus is closed for an extended period of time and we are unable to have our regularly-scheduled class meetings.

In normal circumstances, please contact me through my campus email address or campus telephone number.

campus email: burg@wfu.edu
campus telephone: 758-4465

In emergency situations or situations where the campus is closed, you may also use the following contacts:

e-mail: burgjj@gmail.com
cell phone number: (336) 407-3743

Your course information, including a schedule of assignments, will be posted on Sakai.

If we are able to meet before the campus is closed, I'll give you an updated schedule and instructions at that time.

After leaving campus, you should consult the schedule website regularly for updates to the schedule.

Be sure to take your book, computer, and course notes home with you in the event that the campus is closed. We’ll continue with projects, communicating through the internet, email, and/or hard mail.

Assignments will be posted on Sakai as usual, and you can submit your assignments on Sakai.

If the internet is down, I will mail your assignments to you in hard copy, and, by return address, you should mail back a flash memory drive containing the source code for the implemented program. I’ll return the flash drive to you later.
<table>
<thead>
<tr>
<th>Week Of</th>
<th>Assignment</th>
</tr>
</thead>
</table>
| Wed., Aug. 31| **Wednesday class activities:**  
|              |  • Introduction to course  
|              | **Assignment:**  
|              |  • Set up a blog site for your team on WordPress and make first blog entry |
| Wed., Sept. 7| **Wednesday class activities:**  
|              |  • Pick a partner and a workstation.  
|              |  • Go to course website on Sakai and review assignments.  
|              |  • Bookmark [http://digitalsoundandmusic.com](http://digitalsoundandmusic.com). Scan over the chapters to see what you can learn.  
|              |  • Become familiar with the MATLAB environment.  
|              |  • Learn how to generate single frequency pitches and more complex sounds in MATLAB.  
|              |  • Learn how to write command-line statements in MATLAB.  
|              | **Assignment:**  
|              |  • Refer to *Digital Sound and Music* for deeper understanding of sound waves as sine functions and how MATLAB can be used to model sound. Relevant sections and tutorials in [http://digitalsoundandmusic.com](http://digitalsoundandmusic.com):  
|              |    Sections 2.2.4, 2.3.3 (especially after Figure 2.3.4), and  
|              |    2.3 4  
|              |    "Chords in MATLAB" learning supplement from Section 3.3.4.  
|              |  • Make the most interesting sound you can make in MATLAB. Be ready to play it and explain it to the others next week. |
| Wed., Sept. 14| **Wednesday class activities:**  
|              |  • Share the sounds you made in MATLAB with the other students.  
|              |  • Learn about MATLAB functions, scripts, and programs and how to run them.  
|              |  • Download some MATLAB programs from Sakai and run them in MATLAB. The programs will be in the Resources folder on the course's Sakai website.  
|              |  • Think about how to make complex, interesting sounds in MATLAB.  
|              | **Assignment:**  
|              |  • Make the most interesting sound you can make in MATLAB, even more interesting than last week. Be ready to play it and explain it to the others next week.  
|              |  • Blog. |
| Wed., Sept. 21| **Wednesday class activities:**  
|              |  • Share the sounds you made in MATLAB with the other students.  
<p>|              |  • Learn about the difference between digital audio and MIDI. |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
</table>
| Wed., Sept. 28 | **Wednesday class activities:**  
  - Work on projects.  
  **Assignment:**  
  - Continue working on projects.  
  - Blog. |
| Tues., Oct. 4  | Last day to drop                                                        |
| Wed., Oct. 5   | **Wednesday class activities:**  
  - Work on presentations for next week's demo.  
  **Assignment:**  
  - Be ready to demo your projects.  
  - Create PowerPoint presentation.  
  - Blog. |
| Wed., Oct. 12  | **Midterm Project Demos – All STEM Sections**                           |
| Wed., Oct. 19  | **Wednesday class activities:**  
  - Begin next project.  
  - Blog. |
| Fri., Oct. 21  | **Fall Break**                                                           |
| Wed., Oct. 26  | **Wednesday class activities:**  
  - Continue working on projects.  
  **Assignment:**  
  - Blog. |
| Wed., Nov. 2   | **Wednesday class activities:**  
  - Continue working on projects.  
  **Assignment:**  
  - Continue working on projects.  
  - Blog. |
| Wed., Nov. 9   | **Wednesday class activities:**  
  - Continue working on projects.  
  **Assignment:**  
  - Continue working on projects.  
  - Blog. |
| Wed., Nov. 16  | **Wednesday class activities:**  
  - Continue working on projects.  
  **Assignment:**  
  - Continue working on projects.  
  - Blog. |
| Nov. 23 – Nov. 27 | Thanksgiving Break                                                     |
| Wed., Nov. 30  | **Wednesday class activities:**  
  - Refer to *Digital Sound and Music* for deeper understanding of the difference between digital audio and MIDI. Relevant sections and tutorials in [http://digitalsoundandmusic.com](http://digitalsoundandmusic.com):  
    - Sections 1.4.2, 6.1.2 – 6.1.8, 6.2.1 – 6.2.4  
    - Learning supplements in Section 6.2.3  
  - Blog. |
• Continue working on final project.

Assignment:
• Create PowerPoint presentation explaining what you’ve what you created for your final project and how you did it (about 4 – 6 slides). Upload the slides to Sakai before class.
• Continue working on final project.
• Blog.

Wed., Dec. 7

Final Project Demos – All STEM Sections