All you really need to know for the moment is that the universe is a lot more complicated than you might think, even if you start from a position of thinking it’s pretty damn complicated in the first place. Douglas Adams, *Hitchiker’s Guide to the Galaxy*

**Course time:** TR 3:05 PM – 4:20 PM  
**Course location:** Online (synchronous) with Zoom  
**Method of Learning:** Experiential and consequential learning interleaved with lectures and readings

**Professor:** Christopher W. Starr, PhD  
**Office:** Virtual; Zoom: (for enrolled students only)  
**Office Hours:** MW 11:30 AM – 1:00 PM  
TR 1:00 – 1:30 PM  
Other times by appointment >= 1 day if possible

**Contact:** starrc@cofc.edu  
Office Phone: (for enrolled students only)

**Catalog Course Description**  
Students learn fundamental information technology concepts, processes and tools that drive business innovations resulting in local and distributed product and service solutions. Specifically, students will be introduced to solution design, prototyping, solution development and deployment, communication, and user-data analytics in in startup and growth companies. Students end the course with a technology portfolio of installed and cloud-based platforms and services.

**Course Prerequisite**  
MATH 111 or MATH 250 or DSCI 232 or permission of instructor

**Course Overview**  
In this course, students enter as co-founders in the domain of the technical startup community. In the computational analog, this is akin to entering as intelligent agents within a complex adaptive system. Through the application of concepts, data, processes and tooling, students will iteratively develop and deliver innovative solutions to human problems at the intersection of technology, business and design. The theme of the course is innovation technologies rooted in the principles of computing and providing a platform for experimentation, innovation, failure and learning.

**Theoretical Foundation**  
Solutions to human problems, needs and wants can be embodied in software applications including mobile applications. Such solutions consist of a user interface for visual communication, and functionality accessible through user interaction with their environment, e.g., a mobile phone.

Solutions are derived though empirical evidence from the environment. Evidence of the problem, consisting of a set of independent variables, is input to a user-centered design process using divergent and convergent thinking in iterative succession. The resulting design is the manifestation of an analytical argument poised
conceptually and codified digitally in the form of a discrete solution based on that evidence and presenting the dependent variable.

Once developed, the solution, implemented with specific innovation technologies, is released into the environment as the potential market for the solution. Data collected from that environment via direct and indirect empirical observations of users is used for iterative solution improvement in support of the thesis that the solution is valid in both form and function for users who adopt it.

**S8 Student Learning Objectives**

1. **Demonstrate the ability to create and communicate analytic arguments supported by evidence (R/D)**

   *Students apply the concepts of process creation, process composition and process orchestration in solution design.*

   Measurement 1: Students apply the concepts of information flow and process flow to define the information and communication architecture that determines the nature of a solution. Students will be assessed on their ability to define a client-server architecture or other competing architecture on which to implement their team-based solutions.

   Measurement 2: Chapter Reflections by individual students from selected reading in *Hello, Startup* by Y. Brikman link the student’s major studies with technical disciplinary concepts from the world of software startups.

2. **Analyze and synthesize information within and/or across disciplines (R/D)**

   *Technical solution building occurs the intersection of the technology, design and business. Students will design, prototype and deploy technical solutions for human problems in a business context.*

   Measurement 1. Students individually design, implement and deploy artifacts based on information analysis and synthesis. The artifacts assessed include a wireframe, prototype, and minimal viable product of a mobile application, small in scope and feature set, referred to as a *Tiny (Mobile) App.*

4. **Design and implement a major research project that reflects a high level of proficiency in methods of inquiry and ways of thinking (!)**

   *Through a major, team-engaged, industrial research project, students will deliver a product that reflects proficient utility with concepts, data, processes and tooling. Evidence of engagement in a major, team-engaged, industrial research project will be treated with quantitative and qualitative methods at the empirical level. Theoretical engagement precedes and underpins synthetic and empirical thinking.*

   Measurement 1: Students in teams synthesize a business solution as a product and/or as a service using a visual language (low code) and with supporting software tools.

   Measurement 2: Students in teams apply an agile methodology (Scrum) for iterative product development.

SLO Abbreviations:  I = Introduced    R = Reinforced    D = Demonstrated
Required Books

Recommended Readings (articles)

Recommended Readings (books)

Laptop Requirement
All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.

Recommended Technologies
An Android phone or tablet (no cell plan needed) to test mobile app

Installed and SaaS Applications
1. OAKS for course content, due dates and artifact submissions by you and by your team.
2. Other installed and SaaS applications as assigned or selected by you/your team for wireframing, prototyping, software development, AB testing, Web page development, and analytics. These will be announced in class during the semester.

Course Schedule
The schedule is organized weekly throughout the course. The schedule is provided on OAKS as a course map, where it is kept up today and serves as the single point of truth.

Course Map
This course consists concept modules and skill modules organized in weekly releases. A concept module focuses on learning the concepts of MIS. A skill module focuses on increasing your skill level with an MIS tool. Each week of work contains 5 modules in some combination of concept and skill modules.

Each module is a self-contained unit of work to provide a set of learning objectives for us to master by moving through the module with individual work and work we do together.

Each module consists of a standard structure of submodules making up that module.
Read – a submodule containing reading requirements for us.
Watch – a submodule containing video components us to watch.
Discuss – a submodule containing ways for us to share our thoughts, restate and reflect.
Do – a submodule containing one or more assignments.

We should each schedule 3 hours to work through each module. It may take you less time or more time, but you will know your pace after the first few modules. It is important to schedule your week so that you are not trying to accomplish all of the modules on Sunday for the due date at 8 AM on Monday for all of the modules in the previous week.

This map of weekly modules guides your progress in this course. It is how you will move through the course in an organized and unambiguous way from week to week. You will organize your time for engagement during the week using the course map.

Rather than overwhelming you with all modules for the course all at one time, the modules are released in weekly sets of modules. Every Monday morning at 8 AM, all of the modules for that week open up for our engagement. We will start off the week together in a classroom session on Zoom for two hours to kick off the week. Then for the remainder of the week you will work at your own pace, or the pace of your group for group work, to accomplish all of the learning outcomes for all of the modules that week. This pattern repeats through the last week.

At the end of each week, modules end. This means that due dates for assignments have expired. However, all of the content in all of the previous week’s modules remain open for you to use throughout the course. Even discussions and videos and Zoom recording remain available to you. This openness is not to be interpreted as extra time to get the modules completed. Stay on course with me to have the best learning experience.

Method of Teaching/Learning
This course is a hybrid online course with weekly synchronized meeting times. The course is organized on OAKS with reading materials, videos, discussions, quizzes, and skill development on business software platforms. Live Zoom sessions together each week will also be recorded for playback.

My Teaching and Learning Philosophy

Tell me and I forget.
Teach me and I remember.
Involve me and I learn.

Benjamin Franklin

We learn by doing. We are learning together through active engagement with each other and with the material in the course. Just as important as the material are your ideas, reflections and feelings about the material and what matters to you. My foundation for my interaction is simple.

Be human. Open yourself up. Treat others with respect.
Be present. Be engaging. Share your thoughts with me and other students.
Be adaptable. Expect things to change. Work with me. I’ll work with you.

Let’s ready our minds for new ideas and skills, challenging preconceptions about technology in business. In doing so, we’ll all be successful in the end and satisfied with the journey that got us there.
Graded Work for individual assignments (95 points total)

**Chapter Reflections** (5 points each; 40 points total)
A reflection will be expected following the reading of each Chapter (1-4 and 9-12) from *Hello, Startup*. Think deeply and broadly about the topic through the lens of your past experiences and the emergence of your future vision.

**One Tiny Mobile App from scratch** (5 points for each of 7 development phases; 35 points total)
For an idea of your choosing, you will create a one-screen, mobile application. The six parts of this project are
1) Tiny App Description
2) Tiny App Wireframe - paper
3) Tiny App Wireframe – digital
4) Tiny App Prototype,
5) Tiny App Landing page with Logo
6) Tiny App Minimum Feature Set
7) Tiny App MVP

**Four Mobile Applications** (5 points each; 20 points total)
You will implement four smartphone apps using the AI2 programming language, so you can experience the *low code movement*. (Java is also acceptable for Android apps and Swift for iPhone application development should you be up to the challenge of traditional full-stack development.) The goal of doing the apps is to develop your skill for computational thinking.

**Exceed the bar** (extra credit up to 10 additional points on the final grade)
In Innovation Technologies, extra credit is not about recovering from a grade deficiency, it’s about learning to act professionally by doing more than is expected by your team and yourself. First get everything required done, then engage in additional activities that align with your passions.

+1 point for the number of additional mobile apps developed after the first four apps from the AI2 book.
+1 point for every virtual meetup attended in technology, design and entrepreneurship.
+5 points for putting your tiny app on the Google Play Store
+5 points for reading Chapters 5-8 of *Hello, Startup*

Report extra credit activities using the Bar Exceeded Dropbox.
No extra credit activities or reports of activities will count towards your final grade after Demo Day (the last day of class) for the semester. Of course, keep in the habit of exceeding expectations.

Graded Work for team assignments (100 points total)
Each of the team assignments are delivered in Dropboxes on OAKS. Updates are also welcomed as they occur after the due date for each deliverable, but only the first submission is the one that counts for the due date. All team members receive the same grade for each team assignment.

- **Weekly Scrum Backlogs** (30 points)
- **Wireframe** (10 points)
- **Prototype** (10 points)
- **Product Platform Architecture** (10 points)
- **Landing Page** (10 points)
- **Minimum Feature Set** (10 points)
- **Domain name** (10 points)
- **MVP** (10 points)
**Late work policy**
Individual and teamwork will be accepted after the due date, but expect a late penalty of 50% unless you are granted an exemption for extenuating circumstances. “Early is on time, on time is late, late is unacceptable.”

**Final Numeric Grade Calculation**
Total possible point count for individual work is 95, excluding extra credit.
Total possible point count for the team’s work is 100.
Total possible extra credit point count is 10.

Final grade (195 points (100%)) = Points for Individual work + Points for teamwork

**Grading Letter Scale** (The final grade based on final numeric grade as a percentage, i.e., numeric grade normalized to 100)

<table>
<thead>
<tr>
<th>Points</th>
<th>Letter Grade</th>
<th>Points</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 94</td>
<td>A</td>
<td>73-75.99</td>
<td>C</td>
</tr>
<tr>
<td>90-93.99</td>
<td>A-</td>
<td>70-72.99</td>
<td>C-</td>
</tr>
<tr>
<td>86-89.99</td>
<td>B+</td>
<td>66-69.99</td>
<td>D+</td>
</tr>
<tr>
<td>83-85.99</td>
<td>B</td>
<td>63-65.99</td>
<td>D</td>
</tr>
<tr>
<td>80-82.99</td>
<td>B-</td>
<td>60-62.99</td>
<td>D-</td>
</tr>
<tr>
<td>76-79.99</td>
<td>C+</td>
<td>&lt;60</td>
<td>F</td>
</tr>
</tbody>
</table>

**Course Policies**

**Attendance and Absence Policy**
Just like any organization, this class is a community whose success is dependent on everyone’s participation. Your performance will likely correlate to getting the job done by doing assignments and interacting with me and your classmates.

Your level of class attendance is not part of your grade. Your number of class absences is not part of your grade. Your grade is directly impacted level of participation in assigned class work, so doing the work when scheduled or making up work when late (due to an absence) is your responsibility.

The absence memo process will not be used this academic year. I will not request documentation for absences. I trust you to tell me directly any time you miss class and I will trust that the explanation you give for your absence is honest and truthful.

If you are absent, I will be happy to work with you to catch up. Just ask. Communication is the best way to reduce anxiety and increase your success.

**OAKS**
OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials and grades for each assignment, which will be regularly posted.

**Errors in the Gradebook on OAKS**
Grades will be posted on OAKS. It is the student’s responsibility to ensure that all grades entered are correct. If I have made a mistake, the student has two weeks from when the assignment/exam was graded to notify the instructor of the mistake. Failure to notify the instructor within this time frame will result in the recorded grade becoming permanent.
Recording of Classes (via Zoom)
Class sessions will be recorded via both voice and video recording. By attending and remaining in this class, the student consents to being recorded. Recorded class sessions are for instructional use only and may not be shared with anyone who is not enrolled in the class.

Inclement Weather, Pandemic or Substantial Interruption of Instruction
This is an online, synchronous class. If classes are suspended at the College for an unexpected reason, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning.

Academic Integrity
“Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when suspected, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student’s actions are related more to misunderstanding and confusion will be handled by the instructor. The instructor designs an intervention or assigns a grade reduction to help prevent the student from repeating the error. The response is recorded on a form and signed both by the instructor and the student. It is forwarded to the Office of the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent.

Students can find the complete Honor Code and all related processes in the Student Handbook at: http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php.”

Gender Equity
As your instructor, I will gladly honor, respect and defend your request to address you by the name, nickname and/or gender pronouns of your choice. Please advise me of this early in the semester via your college-issued email account or during office hours so that I may make the appropriate notation on my class list.

Inclusion
The College of Charleston offers many resources for LGBTQ+ students, faculty and staff along with their allies.

- Preferred Name and Pronoun Information
- On Campus Gender Inclusive facilities
- Campus Resources
- College of Charleston Reporting Portals
- National Resources for Faculty & Staff
- GSEC Reports
- Documenting LGBTQ Life in the Lowcountry (CofC Addlestone Library Special Collections Project)
- College of Charleston Quality Enhancement Plan (QEP)
- Articles about CofC and LGBTQ+ Issues

Disability Accommodation
Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged.
Center for Student Learning
The Center for Student Learning’s (CSL) academic support services provide assistance in study strategies, speaking & writing skills, and course content. Services include tutoring, Supplemental Instruction, study skills appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at http://csl.cofc.edu or call (843) 953-5635.

Mental & Physical Wellbeing
At the college, we take every student’s mental and physical wellbeing seriously. If you find yourself experiencing physical illnesses, please reach out to student health services (843.953.5520). And if you find yourself experiencing any mental health challenges (for example, anxiety, depression, stressful life events, sleep deprivation, and/or loneliness/homesickness) please consider contacting either the Counseling Center (professional counselors at http://counseling.cofc.edu or 843.953.5640 3rd Robert Scott Small Building) or the Students 4 Support (certified volunteers through texting “4support” to 839863, visit http://counseling.cofc.edu/cct/index.php, or meet with them in person 3rd Floor Stern Center). These services are there for you to help you cope with difficulties you may be experiencing and to maintain optimal physical and mental health.

Food & Housing Resources
Many CoFC students report experiencing food and housing insecurity. If you are facing challenges in securing food (such as not being able to afford groceries or get sufficient food to eat every day) and housing (such as lacking a safe and stable place to live), please contact the Dean of Students for support (http://studentaffairs.cofc.edu/about/salt.php). Also, you can go to http://studentaffairs.cofc.edu/student-food-housing-insecurity/index.php to learn about food and housing assistance that is available to you. In addition, there are several resources on and off campus to help. You can visit the Cougar Pantry in the Stern Center (2nd floor), a student-run food pantry that provides dry-goods and hygiene products at no charge to any student in need. Please also consider reaching out to Professor ABC if you are comfortable in doing so.

Statement on “Religious Accommodation for Students”
The College of Charleston community is enriched by students of many faiths that have various religious observances, practices, and beliefs. We value student rights and freedoms, including the right of each student to adhere to individual systems of religion. The College prohibits discrimination against any student because of such student’s religious belief or any absence thereof.

The College acknowledges that religious practices differ from tradition to tradition and that the demands of religious observances in some traditions may cause conflicts with student schedules. In affirming this diversity, like many other colleges and universities, the College supports the concept of “reasonable accommodation for religious observance” in regard to class attendance, and the scheduling of examinations and other academic work requirements, unless the accommodation would create an undue hardship on the College. Faculty are required, as part of their responsibility to students and the College, to ascribe to this policy and to ensure its fair and full implementation.

The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the College. Faculty members are expected to reasonably accommodate individual religious practices. Examples of reasonable accommodations for student absences might include: rescheduling of an exam or giving a make-up exam for the student in question; altering the time of a student’s presentation; allowing extra-credit assignments to substitute for missed class work or arranging for an increased flexibility in assignment dates. Regardless of any accommodation that may be granted, students
are responsible for satisfying all academic objectives, requirements and prerequisites as defined by the instructor and by the College.

<table>
<thead>
<tr>
<th>Date</th>
<th>Holiday</th>
<th>Religion</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 18 2020</td>
<td>Rosh Hashanah</td>
<td>Jewish</td>
</tr>
<tr>
<td>September 28, 2020</td>
<td>Yom Kippur</td>
<td>Jewish</td>
</tr>
<tr>
<td>October 2 – October 9, 2020</td>
<td>Sukkot</td>
<td>Jewish</td>
</tr>
<tr>
<td>October 9, 2020</td>
<td>Shemini Atzeret</td>
<td>Jewish</td>
</tr>
<tr>
<td>October 19 - October 26, 2020</td>
<td>Navaratri</td>
<td>Hindu</td>
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<tr>
<td>October 19, 2020</td>
<td>Birth of Baha’u’llah</td>
<td>Baha’i</td>
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<tr>
<td>January 7, 2021</td>
<td>Christmas</td>
<td>Orthodox Christian</td>
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<tr>
<td>February 17, 2021</td>
<td>Ash Wednesday (Beginning of Lent)</td>
<td>Christian</td>
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<tr>
<td>February 25-26, 2021</td>
<td>Purim</td>
<td>Jewish</td>
</tr>
<tr>
<td>March 15, 2021</td>
<td>Great Lent Begins</td>
<td>Christian</td>
</tr>
<tr>
<td>March 20, 2021</td>
<td>Naw-Ruz</td>
<td>Baha’i</td>
</tr>
<tr>
<td>April 2, 2021</td>
<td>Good Friday</td>
<td>Christian</td>
</tr>
<tr>
<td>March 26 - April 3, 2021</td>
<td>Passover</td>
<td>Jewish</td>
</tr>
<tr>
<td>April 12-May 11, 2021</td>
<td>Ramadan</td>
<td>Muslim</td>
</tr>
<tr>
<td>April 30, 2021</td>
<td>Good Friday (Orthodox)</td>
<td>Orthodox Christian</td>
</tr>
<tr>
<td>April 20 and 28, 2021</td>
<td>Ridvan</td>
<td>Baha’i</td>
</tr>
</tbody>
</table>

1 The previously included Islamic holidays of Eid al-Adha and Eid al-Fitr fall outside the regular academic year and are therefore not listed here.
2 All Jewish holidays begin at sunset on the evening before the date given.
3 Orthodox Christian holidays begin at sunset on the evening before the date given.