

CSCI 420 Entrepreneurship in CS



Picture: CC Marina Noor de Graaf_finding a needle in a haystack

CSCI 420 Entrepreneurship in Computer Science

3 Credits, Prerequisites: CSCI 301, CS 303, CS 304, CS 312

From the catalogue: “Develop an innovative solution addressing a demonstrated real need by drawing on the knowledge gained from studies in CS 100-400 level classes and the College Curriculum. General approaches in entrepreneurship towards launching a startup company including design thinking, customer development, and agile management are combined with agile software development to develop a minimum viable software product.”

Pedagogical format: The pedagogical format of this course is a project-based tournament to start with a wealth of initial ideas for innovative projects fitting a given overarching theme that are then carefully evaluated with user tests in various forms applying techniques that are best practice in design thinking as well as prototyping for technical feasibility. Over the course of the class, the number of projects is systematically reduced to prioritize the ones of highest potential, which implies that a majority of students joins other project teams over time. This naturally leads to teams of increasing size as successful projects progress and a corresponding need for change in the way projects are managed. Students apply knowledge and skills developed in courses within their major and other College Curriculum classes to conduct research on their own, judge novelty, technical feasibility, and economic potential of ideas. Class time will be devoted to a) instructor and student led presentations of relevant content, b) evaluating and providing feedback to project ideas and progress being made, and c) project team meetings to report findings, decide and agree on how to proceed further.

Content: The first half of the course focusses on identifying real customer needs (“what is wanted”) and ideas to address them. This will naturally touch upon design thinking and ideation techniques and require research on the state of the art for topics within the overarching theme of the class which includes recognizing existing patented solutions as well as direct and indirect competitors. Insights culminate in research proposal following the format of a CIT proposal to request seed funding to proceed with the project.

The second half of the course focusses on the development of digital products that address the identified needs (“what is possible/how to solve it”). Agile software development is used to develop a minimal viable product. Lectures on software patents, intellectual property, licensing in software development, the legal framework for startups as well as existing online

CSCI 420 Entrepreneurship in CS

courses such as the Udacity course “How to build a startup: the lean launchpad” will complement this phase with additional information on various aspects relevant to move on with a promising project into the harsh reality of real startups.

This course is a CS 420 elective class addressing expectations towards a Coll 400 level course, as described at <http://www.wm.edu/as/undergraduate/curriculum/coll/400/index.php>. It is a capstone experience pursued within the major.

Specific requirements for COLL 400

- Synthesis and critical analysis: Student need to combine insights from different topic areas for the development of an idea through a series of iterations taking technical, economic, ethical, and legal aspects into consideration. Critical analysis of ideas, proposals, and existing approaches for each student’s own team project as well as other projects in class are crucial to progress with the best approaches.
- Assignments that involve problem solving in an applied/academic setting are naturally present in the development of an innovative product and include research on potential demand and existing state-of-the-art solutions, validation of demand with interviews, seeking feedback for ideas with the help of prototypes, developing and implementing a minimal viable product (a software program, code).
- Original material: students will develop documentation in the form of very concise to extensive presentations, product specifications and a project proposal seeking external funding as well as prototypes of different levels of resolution and a minimal viable product.
- Audience: during the process, students will present their ideas outside of class to an interested general audience seeking feedback in the form of interviews, as well as a final presentation in the form of poster presentations at a public venue that may take place in conjunction with other Coll 400 presentations.

Instructor

Peter Kemper
104A McGlothlin-Street Hall
Tel: +1 757 221-3462
Email: kemper@cs.wm.edu

Required book

tbd.

Recommended reading

tbd.

Required work and grading

This class adheres to a learning-by-doing approach.

CSCI 420 Entrepreneurship in CS

Success in this class is determined by the effort you put into it, the rigor you use to apply your knowledge and skills, and documented insights you gained in the projects you worked on. Success is not contingent upon the success of your project. As in the real world, it is our expectation that the majority of the ideas and projects developed in this course will not be viable as entrepreneurial enterprises, for reasons outside the control of either faculty or students. Learning to identify promising but ultimately doomed ideas early (fail early) is an explicit learning objective which implies that success means to develop and quantify convincing arguments towards judgement of success or failure of a project matters as much as making a project work and succeed.

Late work policy

Assignments come with a hard and final deadline. An assignment that you hand in before the deadline will be considered and graded. An assignment that you hand in after the deadline will NOT be considered and NOT graded. Deadlines will be set well in advance and announced with project assignments..

Students who need accommodation

Please communicate your accommodation needs with me.

Information Dissemination

I will maintain a blackboard course and will use Piazza as a communication platform.