

ECE 592-082

Entrepreneurship and Grant Writing

Instructor(s): Wallace Pitts, PhD; wspitts2@ncsu.edu

Objective or Description: Entrepreneurship and Grant Writing is a new class which will focus on teaching writing grants targeted at National Science Foundation (NSF) Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Phase I topics. The idea is to create multiple REAL startup companies in this academic environment that culminates on a submission to NSF on the June 2019 submission date that include you as a part of them. The course will be an engineering focused topic with a side of developing basic business skill sets that will help you, as part of the student team, target the commercialization approach and other aspects of an SBIR/STTR. In this course, you will learn how to “tell a story” for both a technical and business aspect of your product as well as set up a company that is able to receive SBIR Funds. While the course will focus on NSF SBIR Phase I broad solicitations, the framework is just as applicable to other SBIR/STTR calls as to other academic grants. You will breakup into groups and create the required content for the SBIR submissions including, technical plan, budgeting, IP, commercialization, Intellectual Merit, and Broader impacts.

Prerequisites: You should be able to work effectively in a team as well as have the ability to clearly articulate your thoughts in writing and in group settings. Meaning, you should be able to write well in the English language. Finally, you should have the desire and commitment to be in a startup company.

Textbook: N/A

Topics:

You will learn how to develop a Research Budget, Letters of Support, set up a company, and a craft a Project Description for the submission. As the project description is the core of the proposal document it will be the primary grade of the course. The Project Description document will be broken up into 3 sections and focus on the following topics:

- 1) **The Commercial Opportunity:** Taking the chosen idea and finding out the commercial opportunity. This is the WHY.
- 2) **The Innovation and Company Team:** What is/are the key innovations of the product as well as who the team is. This is the WHO/WHAT.
- 3) **Technical Discussion and R&D Plan:** This will cover the in depth technical parts of the innovation and how it is to be implemented and tested. This is the HOW.

Grading: You will be graded as a group on the quality and content of the final proposal that will be submitted to NSF as follows:

- **The Commercial Opportunity (20%)** – 20% of this grade will be based on an individual grade from a peer assessment from the team for contributions of the individual to the section
- **The Innovation and Company Team (20%)** – 20% of this grade will be based on an individual grade from a peer assessment from the team for contributions of the individual to the section
- **Technical Discussion and R&D Plan (20%)** – 20% of this grade will be based on an individual grade from a peer assessment from the team for contributions of the individual to the section
- **Final Document and Submission to NSF (40%)** – 20% of this grade will be based on an individual grade from a peer assessment from the team for contributions of the individual to the section

Cross-listing in other departments: N/A

General Q&A about this course:

Where do the business ideas come from for this course?

The ideas that are to be used for the technical cornerstones will ideally be sourced from research professors, NCSU Centers (such as ASSIST, FREEDM, PowerAmerica, etc.) that have commercial potential, as well as student generated ideas.

What happens if the startup is funded by NSF?

If a group is awarded the NSF SBIR/STTR Phase I, the students and faculty would have the option of continuing the startup together.

When are NSF funds awarded?

Typically, 4-6 months after the grant submission.

How much are the awards?

Phase I: \$225K for 6-12 months

Phase II: \$750K for 24 months + Additional supplemental funding up to another \$750K

What is an NSF SBIR/STTR and how does it work?

Please visit <https://seedfund.nsf.gov/about/> for additional questions about what an NSF SBIR is and how it works.

Anything else I should know about this course?

It is the intent that there will be multiple projects that are up for selection by student teams. The most successful projects usually contain some sort of prototype or proof of feasibility. So, if a project that doesn't have preliminary or proof of concept data/system is chosen, then the team should take that into account as you might need to gather the required data to help strengthen the proposal.