

# Sustainable Technology Entrepreneurship for Scientists and Engineers

AREC/MECH 580

Colorado State University

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**Course Description:** This course exposes students to basic concepts and skills for engaging in technology-based entrepreneurship, particularly within the context of sustainable economic development

**Course Overview:** This graduate level course, cross-listed between the College of Engineering (COE) and the College of Agricultural Sciences (CAS) and team taught by faculty members from each College, focuses on technological and agricultural entrepreneurship within the context of enterprises that respond to new and under-exploited opportunities. For academic scientists and engineers, opportunities to commercially develop technologies may lie within the scope of Colorado- and U.S.-based industries, but they may also lie within the scope of the "market at the bottom of the (socio-economic) pyramid" in developing economies. This course introduces technically trained graduate students to the basic tenets and skills of technology-based entrepreneurship and teaches them to recognize, analyze, and act on such opportunities. A section of the course focuses specifically on application of entrepreneurial skills within the context of developing economies. In addition to the lecture material and associated coursework, students will be engaged in a project wherein they will identify and evaluate an original business opportunity.

**Objectives:** The successful student will develop the following skills and capacities:

- entrepreneurial mindset
- opportunity identification
- opportunity assessment/analysis
- understanding markets at the bottom of the socio-economic pyramid
- new venture management

**Textbook:** Required reading materials will be posted on RamCT.

**Student Evaluation:**

Five homework assignments	15 %
Midterm	20%
Final	30%
<u>Project</u>	<u>35%</u>
TOTAL	100%

The course project will require students to practice the entrepreneurial mindset by identifying and assessing an original business opportunity. Such business opportunities may arise from the graduate student's own ongoing research within their labs in the COE or CAS. The students will be encouraged in particular to pursue their projects by exploring business opportunities in conjunction with the graduate students from the College of Business' program in Global Social and Sustainable Enterprise (GSSE) and work together with a student team in the GSSE program to develop an original business opportunity. Submitted assignments for the project may include a formal presentation of the business opportunity, a written paper describing the business opportunity or providing a market analysis, or other comparable effort.

**Course Outline:**

Week	Course Objective Area	Content
1	Entrepreneurial Mindset	Introduction, historical perspective, entrepreneurial mindset
2	Entrepreneurial Mindset	Entrepreneurship and the economy : A global perspective
3	Opportunity Identification	Recognizing opportunities and generating ideas
4	Opportunity Identification	Intellectual property protection
5	Opportunity Assessment	Market and Customer: Business Model and Value Chain
6	Opportunity Assessment	Building a Team: HR Decisions, Partnerships
7	Opportunity Assessment	Legal Forms of Business Organization
8	Opportunity Assessment	Financing the Venture: Bootstrapping, Debt, Equity
9	Bottom of the Pyramid	From Obligation to Opportunity
10	Bottom of the Pyramid	Entrepreneurial Approaches in the Developing World
11	Bottom of the Pyramid	The Fortune at the Bottom of the Pyramid
12	Bottom of the Pyramid	Microcredit
13	New Venture Management	Managing the Early Stage Company
14	New Venture Management	Stages of Growth, Venture Capital
15	New Venture Management	Legal, Insurance and Regulatory Issues
16		Final Exam