ENTRE 541:

Technology Commercialization Practicum

Quarter:	**Spring 2022, 3/29/2022 – 5/31/2022**
Class Hours:	**Tuesdays, 5 PM – 8:20 PM, Paccar 190**
Credits and Grading:	**4 credits**
Course Website:	**https://canvas.uw.edu/courses/1562117**
Course Zoom Room:	**https://washington.zoom.us/j/7212974154**
Office Hours:	**Fridays, 11:30 - 1 PM (zoom) and by appointment**
Instructor:	**Lisa Hjorten, lhjorten@uw.edu, 425 591-7330**

Course Summary

Technology Commercialization (ENTRE 541) provides graduate students with the opportunity to work with UW scientists and engineers to identify potential applications, markets and business models for breakthrough discoveries invented at the University of Washington. You can see the list of technologies here. The course is focused on building student skills with commercial analysis --- requiring research, critical thinking, and informed speculation regarding the risk/reward of commercializing a very early-stage technology.

Initially you will be self-selecting the technologies that are of interest to you, ranking them from 1 to 3 in order of interest. On the first day of class, we may ask you to move to your second or third choice to balance the number and skills of students on each team. If you already have a team formed around a technology, please contact and get permission from the instructor prior to the first class. In some circumstances, student teams may be permitted to work with a technology that they are developing or already familiar with. Again, please discuss and get permission in advance.

Each year thousands of innovations are discovered within industry, academia and research institutions yet only a handful ever make the complete path from idea --- to product ----to market --- to satisfactory financial return. ENTRE 541 provides students with the tools, questions and experience of exploring that process firsthand.

The research and analysis conducted by students in this class will be centered on six key questions that represent the key steps in the commercialization process:

- Technology Evaluation: Is the technology novel, competitive, and --- if appropriate --- protectable?
- Possible Solutions/Applications: Can a compelling solution be created that solves real and substantial user and customer needs?
- Possible Markets: What is the nature of the market where we might bring a solution and how might we enter it with highest chance of success?

- Making money: Is there a profitable new business or license revenue stream to be had? What business model might be the first to test?
- Assembling a plan: What key commercialization milestones must be completed to improve the odds of a successful new business or license?
- Funding the plan: How will the plan be funded by private or public sources?

Students will answer these questions for a UW invented technology and prepare a feasibility plan that contains an assessment of the underlying technology, a proposed product/solution that incorporates the technology, a conceptual business model for a business that could generate a reasonable return, and a one-year roadmap of milestones needed to move the venture forward.

In addition to working on a feasibility plan, students will learn and apply key concepts taught in the course to their own business experience.

This is a four (4) credit course and the expectation is that students will spend at least ten hours a week on combined class time and independent research.

All students will be required to sign a UW Confidentiality Agreement and must pledge confidentiality regarding their classmates' projects. If you have a "conflict of interest" you must explain it in writing. If we do not receive written notification of such a conflict, we will assume that none exists. Conflict of interest may come from students analyzing companies/technologies they are working with, on, in their labs, in a work setting, or on behalf of their professors.

Prerequisite & Learning Objectives

This course is designed for students who have a strong interest in exploring the process of transforming innovative new technologies into marketable products and services. It is not a traditional lecture and note-taking course but one that involves significant hands-on work as part of a team.

Upon completion of this course, students will be able to:

- Understand the commercialization process and gain firsthand experience working with a UW invented technology to scope possible commercialization paths.
- Understand approaches to conducting primary and secondary research to support a commercialization hypothesis.
- Understand business models --- and create a feasible business model for a solution incorporating the new technology.
- Gain experience developing and scoping project milestones.
- Gain experience presenting a business concept and feasibility plan to others.

Textbooks and reading material

There are no required textbooks for this course. All reading materials will be available online through Canvas. Students are expected to read all materials before class and be prepared to engage in conversation regarding articles at the beginning of class sessions. I will provide a randomized call list to ensure that everyone can be prepared to contribute.

Class Format

Students are expected to attend and participate in all class meetings (unless pre-arranged with the instructor) and to spend the appropriate time needed to research their technologies and prepare for class assignments. This course will include two (2) individual student deliverables, one (2) interim team reports, and one (1) final team deliverable (feasibility plan and presentation).

Classes will consist of short lectures, guest speakers, team time, feedback sessions, and delivery of individual and team assignments. Because of this, class attendance is critical to participation in the learning experience and is required aside from circumstances related to illness or a critical work event with your employer that cannot be rescheduled. If you are not able to attend a particular class session, please email me in advance. Regardless of the rationale, please note that you are responsible for the learning experience that takes place in your absence and please work within your team to address any material you may have missed.

All written assignments will be due on the date scheduled. Papers will be graded on content and style, with content providing approximately 70% of the overall grade. Content includes the quality of information and conclusions, support for conclusions, and the logic and flow of the information presented. Style includes grammar, spelling, punctuation and word usage.

Look at these **Final Commercialization Reports & Presentations** as examples.

Performance Measurements & Grading

Professionalism and Participation	**100 points**
Mini-Assignments	**100 points**
Cloverleaf Analysis (Team)	**100 points**
Interim Team Update #1 (Team)	**200 points**
Interim Team Update #2 (Team)	**200 points**
Final Team Report & Presentation (Team)	**300 points**
TOTAL Points	**1000**

80% of your grade will be based on team results so working together as a cohesive team is critical to success in this class.

The Class Professionalism and Participation points will be determined based on a number of factors:

- Attendance and Punctuality: The class is all about participation. Missing class will negatively impact both you and your team. In the unlikely event of online classes, they will require video-on participation.
- Professional Behavior in Class: Inappropriate cell phone use, excessive socializing, inappropriate dress during presentations, and lack of attentiveness are some examples of behaviors that can cause this score to drop.

- Participation in Class: Asking questions that move the class discussion forward, giving your best effort to every activity, being prepared for and asking relevant questions of guest speakers and visiting speakers and mentors.
- Team Assessment: Much like a 360-degree review in a company, there will be a team assessment survey near the end of the glass that will weigh heavily on this score.

Class Schedule and Work Plan

This 4-credit course requires approximately **10** hours of work per module; it starts off lighter but will increase in intensity and preparation time ahead of the final team presentations. Please expect to spend more time during those modules which include larger assignments.

All classes are in-person unless changes are made due to Covid protocols, instructor illness or special team work-days. Check Canvas for announcements and details as we proceed through the course. *Guest lecturer and mentor schedules may change so patience and flexibility is appreciated.*

There will be time in class to work together as a team and get feedback on your plans but preparation in advance will help you make the most of this time. Do not rely on it as the only time to work with your team and prepare your work product.

The schedule and work plan ***are subject to change*** so please stay tuned to Canvas. The class is organized in Modules that coincide with the 10 scheduled class sessions.

Module	Class Date	Topics / Speakers	Assignments Due, Guest Speakers Details on Canvas
1	3/29	**Introductions & Overview** - Course overview - Personal Elevator Pitch - What is CoMotion, I-Corps, and Tech Commercialization? - Project Selection & Team Formation - Team Time – Intros, planning, & who does what?	- Prepare: for 1 min personal elevator pitch - Prepare: Tech Selections - Prepare: Readings on Canvas - Guest: **Magali Eaton**, iCorp/CoMotion - Due: UW Confidentiality Agreement
2	4/5	**First Steps to Commercialization** - Developing a Research Plan - Identifying potential customers - Leveraging publicly available resources - Team Time: Plan & Prepare for Researcher (PI) meetings	- Prepare: Readings on Canvas - Prepare: Questions for Guest Speaker - Guest: **Jason Sokoloff**, UW/Foster Library Resources - Due: Team Charter
3	4/12	**Determining the Value Proposition** - Team updates on PI meetings - Lean Business Model and Value Proposition - Team Assignment: Cloverleaf Analysis - Team Time	- Prepare: Readings on Canvas - Prepare: Questions for Speaker - Guest: **Ken Myer**, The Lean Startup - Due: Cloverleaf Analysis
4	4/19	**Customer Discovery** - Who is your customer? - Interviewing to confirm customer problem/need - Team Update #1	- Prepare: Readings on Canvas - Prepare: Questions for Speaker - Guest: **Liz Callahan,** Director at Limeaid

		- Team Time	- Due: Present & Upload Team Update #1
5	4/26	**Crossing the Chasm** - The Innovation Adoption Lifecycle - Guest Speaker from the Chasm Group - Team Time	- Prepare: Readings on Canvas - Prepare: Questions for Speaker - Guest: **Tom Kippola**, The Chasm Group (via Zoom)
6	5/3	**Funding the Company** - Panel Discussion: Angel Financing, Venture Capital, Grants & Alternative Financing (SBIR, etc.) - Team Update #2 - Team Time	- Prepare: Questions for Panel - Guests: **Bill McAleer**, Voyager Capital (VC); **Dan Rosen**, (Angel Investor), **Meher Antia**, WRF Capital (Grants, SBIR)
7	5/10	**Intellectual Property** - Overview of patents & the patent process - How to avoid getting caught in a patent battle - Researching patents on a startup budget - Team Time	- Prepare: Readings on Canvas - Prepare: Questions for Speaker - Guest: **Vijay Kumar**, Perkins Coie LLP - Due: Team Update #2
8	5/17	**Reaching the Market** - Routes to market: License vs. Spinout to a new or existing company - Selling your idea - Team Time & Class Exercise	- Prepare: Readings on Canvas - Prepare: Questions for Speaker - Guests from CoMotion: **Frieda Chan**, Innovation Manager Life Sciences, CoMotion; **Judy Bridges** IM Physical Sciences
9	5/24	**Prep/Work Day for Presentations** - Roving mentors to provide feedback on Team Conclusions and Presentations - Team Time to assimilate feedback and make changes	- Prepare: Presentations at 75% ready stage - Guests: mentors from investment and business community
10	5/31	**Team Commercialization Plan Presentations**	- Prepare: Practice! - Guests: Judges from the investment and business community, Researchers - Due: Team Peer Review and Course Reflections - Celebrate: Your success!

Accommodations

Access and Accommodations: Your experience and inclusion are important to me and to the TMMBA Program. If you have already established accommodations with Disability Resources for Students (DRS), please email me your accommodations so I can meet your needs for this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations, you may contact DRS at 206-543-8924 or uwdrs@uw.edu or disability.uw.edu. DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS.

Religious Accommodations: Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an

accommodation, is available at https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/. Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form available at https://registrar.washington.edu/students/religious-accommodations-request/

Class Policies

Electronic Devices: Please respect your instructor and fellow students by keeping your cell phone on silent and stowed out of sight during class. Laptops may be open and used for note-taking only or if needed when working in teams.

Academic Integrity and Student Conduct: Honesty and integrity are essential to the free exchange of ideas and knowledge at UW. Academic and behavior conduct is described at: https://www.washington.edu/ studentconduct/ For the full text of the student conduct code please see http://apps.leg.wa.gov/WAC/ default.aspx?cite=478-120&full=true.

You are responsible for knowing what constitutes a violation of the University of Washington Student Code. For information regarding academic integrity. Please see http://www.washington.edu/admin/rules/policies/ SGP/SPCH209.html#7 and https://apps.leg.wa.gov/WAC/default.aspx?cite=478-121-107.

Plagiarism and cheating: Submitting someone else's ideas or words as if they were your own is plagerism and is not tolerated. Please use citations in a consistent format that you are comfortable but be sure they are complete and correct. There are no shortcuts in entrepreneurship and engaging in plagiarism or cheating always short-circuits your ability to produce novel, creative work. Plagiarism or cheating may lead to you failing the assignment or the entire course. This link can help clarify the UW's guide on plagiarism. https://guides.lib.uw.edu/c.php?g=345664&p=2331762.

Respect for Diversity: Diverse backgrounds, embodiments and experiences are essential to the critical thinking endeavor at the heart of university education. At UW, students are expected to respect individual differences which may include, but are not limited to: age, cultural background, disability (including invisible disabilities), ethnicity, family status, gender presentation, immigration status, experiences with trauma and violence, national origin, race, religious and political beliefs, sex, sexual orientation, socioeconomic status, and veteran status.

Syllabus Purpose and Disclaimer:

This syllabus serves as a guideline for what to expect in this class and an implicit agreement between the instructor and the student. Before contacting the instructional staff, please review these documents first to see if your question is addressed. Every effort will be made to avoid changing the course schedule, but adjustments may be necessary to accommodate errors, omissions, or unforeseen events (such as weather events). In the event changes are made to the syllabus, students will be informed during class, on the course website, and via email. It is your responsibility to be aware of these changes, so please check your email and the course site often.