

Course Outline

BIOE 7280 Intellectual Property and Technology Commercialization

Instructors:

Mike Williams Ph.D. Patent Agent, Ade and Company Inc.
Darren Fast, Ph.D. President, Solalta Advisors Ltd.

Guest Lecturers

Steven Raber, Fillmore Riley LLP
David Carrick, Aikins MacAulay and Throvaldson LLP

Overview:

This course is designed to provide an introduction to graduate students on the interaction between the corporate and academic worlds. Students will be taught how to recognize potentially valuable inventions and protect them. An overview of the commercialization process will be provided. Students will have several reading assignments and a project for both the intellectual property and technology commercialization sections.

Student Evaluation:

Sessions 1-6 – 3% each session

Students will be required to contribute at least three relevant statements of less than 100 words in the weekly discussion rooms.

Session 7 – 32% of final grade

Students will be assigned a patent in their research area and will be expected to critically review the patent. That is, determine what is the invention based on the disclosure, what do the claims protect, what is the most relevant prior art, and how important does the patent appear to be, based on the number of later patents that reference it. Students will submit a brief written summary of this information (2-3 pages).

Sessions 8-12 – 3% each session

Students will be required to contribute at least three relevant statements of less than 100 words in the weekly discussion rooms.

Reading Summaries and discussion (15%):

Article references will be provided in advance of sessions 8-12. Students will be required to prepare a short summary, with a total length of not more than 400 words, of one article per session. The summary will outline the main points of the article and their relevance to technology commercialization. Students will be required to contribute at least one relevant statement of not more than 100 words per article in the discussion rooms.

Commercialization Project – 17% of final grade

Students will identify a technology in their area of research and complete the following:

- Target Product Profile with key end-user features/specifications
- Market Assessment (high level)
 - Target market segment definition
 - At least two market drivers
- Outline of a project plan for development of the technology

Grading:

Letter Grade	Numerical Score	Explanation	Grade Point
A+	90 – 100	Exceptional	4.5
A	80 – 89	Excellent	4.0
B+	77 – 79	Very Good	3.5
B	70 – 76	Good	3.0
C+	67 – 69	Satisfactory	2.5
C	60 – 66	Adequate	2.0
D	50 – 59	Marginal	1.0
F	Under 50	Fail	0.0

Intellectual Property

1. *Overview of intellectual property*

An introduction to intellectual property – what it is and how you protect it. Patents, designs, trade secrets, trademarks, copyright and plant breeder's rights will be introduced and discussed to point out the advantages and limitations of each form of protection

2. *Detail on patents*

A more in-depth look at patents – why we have a patent system, an overview of what is patentable and the process for preparing a patent application – what type of material should be included, the importance of the claims and the importance of support for fall-back positions.

3. *Patent searches*

This class will cover the various types of patent searches including novelty, validity and freedom to operate searches. This session will also cover 'reading' a patent application to determine the nature and limits of the protection and how different parts of the patent are read when determining novelty versus determining freedom to operate.

4. *Reading claims and ownership/inventorship determinations*

An in depth analysis of what is protected by the claims of a patent and what isn't. The second part will deal with how you determine who is an inventor and how you determine who owns an invention.

5. *Overview of infringement and validity*

An in depth analysis of patent infringement and patent validity with case studies – does this patent infringe the claims of this one and is this patent valid in view of this earlier patent?

6. *Protecting non-patentable subject matter*

Industrial designs, trade secrets, traditional copyright protection, plant breeder's rights. What is and isn't infringement. Software-based patents, limits of copyright protection on software, what is and isn't copyright infringement with software, other forms of protection.

7. *Project*

Students will be assigned a patent from their area of research and will prepare a written report on the patent: who are the inventors, who owns the patent, what other patents they own as means of determining how important this patent is to the overall patent portfolio of the company, what the claims protect, and contrasting that with the detailed description of the patent.

Technology Commercialization

8. *Technology Commercialization Options:*

What are the sources of technology and what are the options for commercialization (sale, license, acquire, new venture formation, spin-out, etc.)? How should one decide which is the best for the technology available? The class will explore each of the options. The class will also start to consider the process for technology commercialisation and the major factors required for success. What does the tech transfer office need to successfully market a technology?

9. *Idea Generation and Preliminary Market and Technical Assessment*

Technologies and products based on the technology must address market needs to be adopted by end users. This session will start to build the business case for a new product and will address various questions including: How is a determination made that a technology addresses an unmet need? What is the overall market strength? Is the product differentiated sufficiently to be adopted? What is the unfair competitive advantage that will allow the product to capture and defend market share. Students will discuss preparation of an elevator pitch.

10. *Evaluation of Markets for New Products*

A case study examining market need and product potential will be discussed in class. Students will be evaluated based on their contribution to discussion of the case, identification and evaluation of the opportunities and recommendations for courses of action.

Target Product Profiles will be discussed as a tool to determine the market and technical specifications required for a new product.

11. *Product Development*

A market need and a technology with potential to address the need have been identified. What are the next steps? Development work plan, personnel requirements, proposed expenditures, investment requirements, and capital plan. Project Management techniques will be reviewed and a sample project outline developed for a selected technology.

12. *Sponsored Research and Sources of Capital*

a. Sponsored Research – How to forge a successful partnership with business without selling your soul:

Businesses and academic researchers often need each other, but don't know how to effectively interact. This session will discuss some of the driving factors for both academic and corporate research and how they can effectively work together without compromising the ability to publish or obtain research grants.

b. Sources of Capital and Case Study – New Venture Startup:

Examination of various sources of capital: grants, loans, equity (Friends & family, Angels, Partnerships, Venture Capital) and others. A case study examining the formation of a new venture to commercialization technology will be discussed in class. Students will be expected to review the case, evaluate the challenges facing the new venture, and propose various options to address those challenges.

Instructor Biographies

David Carrick LLP is the chair of Aikins MacAulay and Thorvaldson's Tekno Law Practice Group, which is effectively a full service intellectual property / information technology boutique. He assists entrepreneurs in developing, protecting and commercializing their inventions, other intellectual property, information technology and biotechnology.

Darren Fast, Ph.D. is the President and founder of Solalta Advisors, which enables companies and institutions to effectively commercialize their life science technologies and products. Prior to Solalta Advisors, Darren was Chief Technology Officer at Lombard Life Sciences, the general partner of the Western Life Sciences Venture Fund LP, a Canadian-based Venture Capital fund, where he identified and evaluated more than 300 early stage technologies for investment. In addition to assessing and investing in technology, Darren was intimately involved in packaging companies for follow-on investment/exit, and in helping lead portfolio company development and commercialization activities. Prior to Lombard Life Sciences, Darren was a Manager for Product Planning and Development at Viventia Biotech where he was responsible for the development of several human therapeutics projects. Darren led the project teams that moved these products from research into clinical trials. In addition to teaching Technology Commercialization Management through Extended Education, Darren has presented numerous seminars on technology commercialization to a wide range of audiences including the Canadian Institutes for Health Research. Darren has a Ph.D. in biochemistry from the University of Alberta and a M.Sc. in chemistry from the University of Manitoba.

Steven Raber LLP practices civil litigation, primarily commercial, employment, financial services, insurance, and intellectual property litigation, including patent, trade-mark, copyright, trade secrets, and industrial designs, and is a registered trade-mark agent.

Mike Williams Ph.D. area of practice is biotechnology. Mike has prepared and successfully prosecuted patent applications in USA, Canada and foreign countries for pharmaceutical compounds, nutraceuticals, lotions, chemical compositions, medical devices, diagnostic methods and recombinant DNA patents. Mike has a B.Sc. in Genetics from the University of Manitoba and a Ph.D. in Biochemistry and Biophysics from Texas A&M University. Prior to joining Ade & Company in 1996, Mike was employed as a post-doctoral fellow at the National Institutes of Health in Bethesda, Maryland. In addition to teaching two Intellectual Property courses for Extended Education since 2004, Mike has also lectured on IP at the University of Manitoba for the Department of Electrical Engineering, the Faculty of Law, and the Faculty of Medicine, Department of Medical Microbiology. Mike has also provided seminars on Intellectual Property for the University of Saskatchewan, University of Winnipeg, University of Manitoba, the National Research Council, Health Canada and Red River College.