The Wharton School, University of Pennsylvania
MGMT 7290/2290:
Intellectual Property Strategy for the Innovation-Driven Enterprise
Spring 2024, Q3
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I. Instructor

Steven Weiner is Senior Director of Innovation & Technology for Penn Engineering, and a lecturer in Wharton's Management Department. Previously, he was a partner with the law firm of Davis Polk where he led the firm's Corporate Intellectual Property practice; he has also held executive positions in the tech industry. Professor Weiner holds degrees from Harvard Law School, MIT, and the University of Pennsylvania.

Professor Weiner created this course by drawing on his extensive experience advising companies and stakeholders about strategic business decisions that require a deep understanding of intellectual property law, advanced technology, and business strategy.

II. Student Qualifications and Prerequisites

Strong interest in technology innovation from a business perspective is expected, but there is absolutely no need for deep technical background in order to excel in this course. The course will also benefit Engineering students with entrepreneurial or business management aspirations, as well as Law School students and others with a strong interest in IP and technology.

III. Course Objectives and Overview

Announcing the first iPhone at Macworld 2007, Apple CEO Steve Jobs famously boasted: "And boy, have we patented it!" How, and to what extent, does intellectual property actually provide competitive advantage for innovative technology companies? What makes an IP asset strategically powerful? How do patents impact – and sometimes drive – major corporate decisions including M&A, venture funding and exits, and entry into new markets? In this course, students will learn to critically analyze and answer these questions, gaining insights they can leverage in their future roles as innovation industry executives, entrepreneurs, strategists and investors.

To achieve these goals, the course is divided into three units:

- In Unit 1, ***Patents and Innovation Value*****,** we learn how to analyze the scope of protection provided by patents, and we examine closely how and when that form of protection translates to competitive advantage and business value. We practice applying these concepts and skills to shape and critique the patents that protect a company's most important innovations.
- In Unit 2, ***Patent Leverage and the Corporate Playbook***, we study theory and examples of how patent leverage can strategically inform a variety of corporate transactions. We will analyze the benefits and pitfalls of various IP strategies, for established companies as well as for start-ups.
- In Unit 3, ***Limits and Alternatives to Patents***, we confront implications of recent legal trends toward reigning in the scope and power of patents. We will review the impact from a business perspective, and we discuss alternatives for adapting IP strategy appropriately in light of these sea changes and particularly in view of AI and big data revolution.

Students who take and succeed in this course should expect to acquire insights and methods that they can utilize throughout their careers to contribute important value as stakeholders in innovative technology businesses, from emerging start-ups to industry leaders.

IV. Assignments and Presentations

At the heart of the learning experience in this course are three written assignments and a live classroom presentation, in which students will be challenged to apply the core lessons of the course. The classroom presentations will typically be done by small teams, near the end of the course.

Written Assignment #1: Critique a patent. Students will be given U.S. patent claims for a current technology, with related background information about related products, publications, and/or companies. The assignment will pose questions that require students to critique the patent in light of the background information provided and the principles we learn in Unit 1 of this class.

Written Assignment #2: **Select and justify a transactional IP strategy**. Students will be given information describing a competitive technology market, including the relevant patent landscape. A menu of possible IP transactions will be outlined in the packet, involving various industry stakeholders. Students will be asked to create a transactional IP strategy for a specified stakeholder by selecting from that menu; to critique alternatives; and to defend their choice in view of the principles we learn in Unit 2.

Classroom Presentation: Create and deliver an IP strategy pitch to management. Students will be divided into small teams. Each team will develop and present an IP protection strategy for an assigned invention, based on background information that will be provided, by applying the principles learned in this course. Inventions are drawn from a variety of industries. Students who are developing their own entrepreneurial projects may be allowed to present on those technologies, with the instructor's permission. Each team will present its proposal in class on an assigned date near the end of the term, styled as a pitch to internal company management. Team presentations with accompanying slides should each be 10-15 minutes and will be followed by brief Q&A with the class and (possibly) special-guest panelists. *(For undergrads only this term.)*

Final Written Assignment: An expanded written assignment at the end of the course will challenge students to integrate and apply the concepts, strategies, and skills they have learned throughout the course in the context of a high-stakes, strategic corporate scenario such as a prospective acquisition or investment decision, from the perspective of multiple different stakeholders.

For all assignments: Any material reproduced verbatim must be enclosed in quotation marks, with attribution to the source. Ideas and concepts, even if not quoted verbatim, should be attributed to the author/source. You may use generative AI programs (e.g., tools like ChatGPT) to help generate ideas and brainstorm. However, note that material generated by these programs may be inaccurate, incomplete, or otherwise problematic. Beware that use may also stifle your own independent thinking and creativity. You may not submit any work generated by an AI program as your own. If you include material generated by an AI program, it should be cited like any other reference material. Any plagiarism or other form of cheating will be dealt with severely under relevant Penn policies.

V. Grading

- Regular assignments: 40% total (20% each)
- Live classroom presentation: 20%
- Final assignment: 25%
- Active class participation: 15%

This quarter, MBA students will not participate in the live presentations. The regular assignments will count as 50% (40/80), the final assignment as 31.25% (25/80), and class participation as 18.75% (15/80) of the final grade for MBA students. This is to accommodate Wharton's academic calendar.

VI. Readings

Required readings (and some optional readings) in preparation for each class are listed below in the course outline. The readings will generally be made available to students via Canvas. Come to class prepared to discuss the assigned readings, with particular attention to the "Study Question" identified in the Course Outline below for each class.

VII. Classroom Rules and Expectations

- Each class starts and ends on time
- Class attendance and active participation is important for successful performance in this course, and will be reflected in class participation grades
- Bring and display your name card at each class
- Any requests for excused absence, or for any other exceptions to class rules, requirements, and deadlines, must be submitted to the instructor in writing by email
- No use of phones, tablets, laptops, or other electronic devices during class, except when specifically directed by the instructor (e.g. for live polling in class). All phones and other electronic devices must be turned off and put away. If a student must keep a phone on by reason of a personal emergency, the student must inform the instructor before class begins. Penalties for violations of this policy may include significant loss of participation points and consequent reduction in final grade.

VIII. Office Hours

Consultation with the instructor regarding course-related issues can be scheduled upon request, subject to availability. Meetings may either be virtual in person, depending on schedules, and may be with individual students or in groups.

IX. Course Schedule

Session	Date	Topic
MBA	Tues. Jan. 16	Introductory session for **MBA students only**
Unit 1: Patents and Innovation Value		
1	Thurs. Jan. 18	How patents contribute to business: theory & examples
2	Tues. Jan. 23	Value propositions and patent protection
3	Thurs. Jan. 25	Evaluating patent claims from a business perspective
4	Tues. Jan. 30	Guest speaker **Assignment #1 due online @11:59pm**
Unit 2: Patent Leverage and the Corporate Playbook		
5	Thurs. Feb. 1	Defensive strategies: freedom to operate
6	Tues. Feb. 6	Asymmetric patent warfare
7	Thurs. Feb. 8	Complex IP transactions and contextual assets
8	Tues. Feb. 13	Guest speaker **Assignment #2 due online @11:59pm**
Unit 3: Limits and Alternatives to Patents		
9	Thurs. Feb. 15	Limits: *Alice* and "abstractness"
10	Tues. Feb. 20	IP strategy for Big Data and AI: beyond patents
11	Thurs. Feb. 22	Generative AI and IP
Student Presentations and Final Written Assignment		
Undergrad12	Tues. Feb. 27	Student presentations – **undergrads only**
Undergrad13	Thurs. Feb. 29	Student presentations - **undergrads only**
[no class]	**Fri. March 1**	**Final written assignment due online @5:00pm – all students**

X. Course Outline

Unit 1: Patents and Innovation Value

Session 1: How patents contribute to business: theory and examples

Readings:

Theoretical Perspectives on Patent Strategy. Deepak Somaya (Aug. 2002), **section 3 only (pp. 8-15)**
https://www.academia.edu/2486580/Theoretical_Perspective_on_Patent_Strategy?auto=download

Strategic Patenting: Why So Few Patents Create Real Value, Jackie Hutter, on *IP Asset Maximizer Blog* (Jan. 2014):
http://ipassetmaximizerblog.com/strategic-patenting-part-1-why-so-few-patents-create-business-value/

The Apple-Samsung Case: What It Means for Patents — and Innovation, Knowledge@Wharton online article:
http://knowledge.wharton.upenn.edu/article/the-apple-samsung-case-what-it-means-for-patents-and-innovation/

How Patents Help Internet Companies – Friendster & Facebook [Case Study], online article (May 18 2012)
https://yourstory.com/2012/05/how-patents-help-internet-companies-friendster-facebookcase-study/

(**optional**) *Resources as Dual Sources of Advantage: Implications for Valuing Entrepreneurial-Firm Patents*, David Hsu and Rosemarie Ziedonis, in *Strategic Management Journal* 34: 761–781 (2013)

Study Question: How does patent "isolation" translate into actual value for innovative companies? Consider both mature players and new ventures; and various industries, e.g. smartphones, social media.

Class: Lecture on theory and goals of the patent system, with illustrations of different ways in which patents can create significant impact for an innovative technology business.

Session 2: Value propositions and patent protection

Readings:

Strategic Patenting 4: A Case Study of Success, Jackie Hutter, on *IP Asset Maximizer Blog* (Aug. 2014):
http://ipassetmaximizerblog.com/strategic-patenting-4-case-study-success/

Peloton Sues Flywheel in What Could Be the Ultimate High-Tech Fitness Fight, Fast Company (Sep. 13, 2018):
https://www.fastcompany.com/90236687/peloton-sues-flywheel-in-what-could-be-the-ultimate-high-tech-fitness-fight

(**optional**) *It's as Simple as NABC, How Liz Got Her Big Job*. From *Innovation: The Five Disciplines for Creating What Customers Want* (Chapter 5), Curtis Carlson and William Wilmot, published by Crown Business (August 8, 2006)

Study Question: Which aspects of a product or technology are the most valuable to patent? What criteria should shape your patent strategy?

Class: Lecture on the relationship between patents and value propositions; reading and critiquing patent claims from a business perspective. Detailed illustrations will be discussed from several different industries.

Session 3: Critiquing and sharpening patent claims from a business perspective

Class: Lecture and practice critiquing actual patent claims for notable innovations in several fields.

Session 4: Guest speaker – patents and innovation value

Class: An invited guest speaker from industry will share relevant experience

Written Assignment #1 is due Tues. Jan. 30 at 11:59pm (same day as Session 4)

Unit 2: Patent Leverage and the Corporate Playbook

Session 5: Defensive strategies – freedom to operate

Readings:

Don't Fence Me In: Fragmented Markets for Technology and the Patent Acquisition Strategies of Firms. Rosemarie H. Ziedonis, in *Management Science,* Vol. 50, No. 6, pp. 804–820 (June 2004)

Innovation in Multi-Invention Contexts: Mapping Solutions to Technological and Intellectual Property Complexity. Somaya, D., Teece, D., and Wakeman, S., *California Management Review*, 53(4), pp. 47-79 (2011)

Google Did Not Make a Mistake with Motorola Mobility, Conversant IP website post (February 6, 2014): http://www.conversantip.com/blog/google-did-not-make-a-mistake-with-motorola-mobility/

Facebook Buys AOL Patents from Microsoft for $550 Million, Wall St. Journal (April 23, 2012)

(**optional**) *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting Innovation*. Carl Shapiro, Chapter 4 from *Innovation Policy and the Economy – Volume 1*, MIT Press (January 2001), available online at: http://www.nber.org/chapters/c10778

Study Question: What are benefits and pitfalls of cross-licensing as a response to patent thickets?

Class: Lecture on the patent "hold-up" problem, patent thickets/minefields, and a close look at the corporate playbook of defensive strategies for securing freedom-to-operate.

Session 6: Asymmetric patent warfare

Readings:

From Arms Race to Marketplace: The New Complex Patent Ecosystem and Its Implications for the Patent System. Colleen V. Chien in *Hastings Law Journal*, Vol. 62, pp. 297-356 (December 2010)

Patent Strategies of Technology Startups: An Empirical Study. Paper by Celia Lerman*, May 25, 2015.* *https://papers.ssrn.com/abstract=2610433*

LOT Network
https://lotnet.com/, https://lotnet.com/how-lot-works/

(**optional**) *Patents, Thickets and the Financing of Early-Stage Firms: Evidence from the Software Industry*. Iain M. Cockburn and Megan MacGarvie, NBER Working Paper No. 13644 (November 2007)

(**optional**) *Comments of Google, Blackberry, Earthlink and Red Hat to the Federal Trade Commission and U.S. Department of Justice on Patent Assertion Entities* (April 5, 2013)
https://docs.google.com/file/d/0BwxyRPFduTN2VTE4TXlNcW9MR2s/edit

Study Question: How do start-ups navigate patent thickets? Is patent strategy mainly about freedom to operate, differentiation, or something else?

Class: Lecture on how patent leverage works in the context of *asymmetric exposure*. Implications for start-ups, non-practicing entities, and mature companies.

Session 7: Complex IP transactions and contextual assets

Class: Lecture on how the contextual value of IP assets often shapes business terms for M&A and other complex corporate transactions, with illustrative examples

Session 8: Guest speaker – patent leverage and the corporate playbook

Class: An invited guest speaker from industry will share relevant experience

Written Assignment #2 is due Tues. Feb. 13 at 11:59pm (same day as Session 8)

Unit 3: Limits and Alternatives to Patents

Session 9: Limits: *Alice* and "Abstractness"

Readings:

Patently Absurd, James Gleick, New York Times Magazine (March 12, 2000)
http://www.nytimes.com/2000/03/12/magazine/patently-absurd.html

Alice Corp. v. CLS Bank International, 134 S. Ct. 2347 (2014)
https://www.supremecourt.gov/opinions/13pdf/13-298_7lh8.pdf

USPTO Abstract Idea Examples (issued January 27, 2015) (examples nos. 2 and 8)
https://www.uspto.gov/sites/default/files/documents/abstract_idea_examples.pdf

USPTO Subject Matter Eligibility Examples: Abstract Ideas (January 2019 update)
https://www.uspto.gov/sites/default/files/documents/101_examples_37to42_20190107.pdf

(optional) USPTO 2019 Revised Patent Subject Matter Eligibility Guidance
https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf

Study Question: What problems were recent changes in US patent law seeking to address – and do the changes actually address those problems? What are the implications for innovative businesses?

Class: Lecture on the recent dramatic shift in US law on what is eligible for patenting. We examine positive and negative examples, and consider practical guidance for software innovation, especially AI.

Session 10: IP Strategy for Big Data and AI: Beyond Patents

Readings:

Mapping the patent landscape of medical machine learning, Aboy, M., Price, W.N. & Raker, S., Nature Biotechnology 41, 461–468 (2023)

The Half-Truth of First-Mover Advantage, F. Suarez and G. Lanzolla, Harvard Business Review (April 2005)

Why being first doesn't matter, blog post on intercom.com website:
https://blog.intercom.com/why-being-first-doesnt-matter/

Network Effects Aren't Enough, Andrei Hagiu and Simon Rothman, Harvard Business Review (April 2016)

How Strong Are Network Effects Online, REALLY? Business Insider (May 19, 2011) at:
http://www.businessinsider.com/network-effects-2011-5

Network Effects. Andreesen Horowitz slide presentation at:
http://www.slideshare.net/a16z/network-effects-59206938

See especially this slide and surrounding slides:
http://www.slideshare.net/a16z/network-effects-59206938/82-MAX_LEVCHINThe_defensibility_of_these

Study Questions: What IP strategy can be used to effectively protect AI innovations – especially after *Alice*? Is there synergy between IP and "first-mover advantage" that can help garner sustainable competitive advantage?

Class: Lecture on alternatives to patent protection, especially for AI-related innovation. Are patents a suitable form of protection for AI? We will examine so-called "first-mover advantage" and several different-but-related concepts (stickiness, virality, network effects), and consider to what extent they can provide sustainable competitive protection. We also consider implications of the data revolution in this context.

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Session 11: Generative AI and IP

Readings:

https://www.youtube.com/watch?v=5cbCYwgQkTE (Holly Henderson Ted Talk)

https://www.npr.org/transcripts/1119220726 (NPR interview w/ Holley Henderson)

https://www.newyorker.com/culture/cultural-comment/what-to-do-about-fake-drake-songs

https://www.newyorker.com/science/annals-of-artificial-intelligence/there-is-no-ai (re: "data dignity")

(optional) https://www.youtube.com/watch?v=pGntmcy_HX8 (WSJ tech background on Spotify AI DJ)

Study Questions: What unique IP challenges and opportunities arise from the explosive growth of generative AI technology and capabilities, such as ChatGPT?

Class: Lecture on IP challenges – and opportunities – associated with large data models, including data mining and generative AI. We will discuss and analyze examples drawn from the entertainment industry and other fields.

Sessions 11 & 12: Classroom Presentations *(undergrads only this term)*

These sessions will be devoted to **live presentations by student teams**. Each team presents and defends a proposed strategy for its pre-assigned IP strategy challenge, followed by interactive class discussion.

The Final Written Assignment for all students is due Friday March 1 at 5:00pm