



An Undergraduate Course in Intellectual Property Law

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Introduction

The law of intellectual property (IP) constitutes a key knowledge area for aspiring entrepreneurs and technology commercializers. While developers of technology normally rely on attorneys for advice about the protection of their ideas as trade secrets or as patents, developers can better prepare for this process if they understand basic concepts of IP law. Indeed, they will know what to do before seeking counsel, when to seek counsel, and what to do when they meet with their attorneys.

In law school, IP is usually taught as a second- or third-year course, when students already have knowledge of torts, contracts, civil procedure, and property law. Undergraduate majors in engineering and computer science, virtually without exception, have none of this background and often have only the slimmest knowledge of the judicial system. Yet, as they graduate and join the workforce, they may quickly need to know how to handle IP, and this is especially true for entrepreneurially minded students who begin creating start-ups upon graduation—or even before graduation.

Courses on IP law for non-lawyers are offered at a few universities in the United States. Many of these courses are at the graduate level; for example, at the University of Colorado a graduate course in IP law meets jointly with a course offered by the university's law school. Other courses for engineers are offered through continuing education programs, which is the case at the University of Georgia. At the undergraduate level, a survey of the field indicates that IP law courses are offered at the University of Illinois at Urbana–Champaign, the University of Washington, and the University of California, Merced, where the course focuses exclusively on patents.

Students in engineering and computer science are, fundamentally, knowledge workers. As these students join the workforce, a basic understanding of how IP enables the creation of value from knowledge amounts to a literacy requirement. Too often, technical knowledge workers can be ill informed about this critical set of tools and constraints on their work. Given the need for students in engineering and computer science, and particularly for the most entrepreneurial, to know about IP, is it possible to teach IP to undergraduates? This paper reports on three semesters of experience in teaching IP to undergraduate students at the University of Texas at El Paso. The paper presents the course's context, content, delivery, and assessment, and discusses the ways in which the course has changed as a result of assessment.

Course Context

The University of Texas at El Paso is a public regional institution, enrolling 23,000 students, the majority of whom are Hispanic Americans. The university has a large College of Engineering, which includes a department of computer science, and, in the College of Liberal Arts, a highly successful law-school preparation institute (LSPI). Most of the LSPI students major in political science.

The university's course in IP law was first offered in 2011 as a special-topics course in computer science cross-listed with a special-topics course in political science, both at the undergraduate senior level. A few graduate students in computer science joined the course in a co-listed graduate section. In all three semesters, total enrollment was 30 students per class, half from computer science and half from the LSPI program. At the start of the course, computer science students typically had little knowledge of the judicial system, and the LSPI students had only passing knowledge of computing and engineering technologies. None of the students typically had much experience in oral presentations requiring critical thinking, but the average student was older than that in most undergraduate programs.

The course's instructor was a professor of computer science, specializing in human-computer interaction, who, before earning his doctorate, had earned his J.D. and then practiced law for six years. The instructor had taken a course in intellectual property while in law school, had taught communications law at another law school, and had, one summer as faculty member in computer science, clerked for an intellectual property law firm.

A survey of students at the start of the course each semester indicated that students were excited about the topic but that the computer science students were apprehensive about their limited knowledge of the judicial system and that the pre-law students were apprehensive about their limited knowledge of science and technology. Some students indicated that they liked the active class participation characteristic of the Socratic method, while others indicated that they worried about speaking in class. Each semester's students had a wide range of fluency in speaking and writing English, and some students were shy about talking in front of others.

Content

The course's main goals were to provide students with knowledge of the basics of IP law, to introduce current issues, to improve critical-thinking and argumentation skills, and to provide a preview of law school for students considering legal study. The course primarily covered the IP fields of trade secret protection, patents, and copyright. The course emphasized critical thinking, with the expectation that these skills would transfer to the students' future learning and work, regardless of major or of career plans. In its current form (the course is being taught for a fourth time in the spring of 2015), the course's expected learning outcomes are

- Knowledge and comprehension: Explain the purpose and scope of the U.S. Constitution patent and copyright clause, federal statutes on patent, copyright and trademark, and judicial decisions on intellectual property; explain the key concepts of non-obviousness, novelty, authorship, fair use, trade secret, and copyright.
- Application and analysis: Apply skills of critical thinking, reading, understanding, explaining and applying IP-related statutes; reading, understanding, explaining and applying IP-related cases; analyzing the facts of a case in light of applicable law; researching existing IP for an invention.
- Synthesis and evaluation: Contrast the interests of authors vs. the interests of consumers; discuss the public interest in the production of intellectual property; prepare and deliver an appellate argument in an IP case.

Because the students do not have the experience of the first year of law school, the course includes quick sketches of the judicial system, the appellate process, how to read an appellate decision, and the differences between common and statute law. The course also includes work on legal reasoning, stressing the importance of understanding a case’s precise question and holding; this turns out to be similar to understanding the research question and result in an academic paper, so there should be cross-learning for the computer science students.

In terms of substantive law, the course begins with the common law of misappropriation of information, known as the “hot news” rule, and the law of trade secrets. The heart of the course’s content centers on the law of patents, with particular attention to issues of patentability of software. The course concludes with the law of copyright, including fair use. Some of the cases are more fun for the students than others. The classroom session on the fair-use case of *Campbell v. Acuff-Rose Music*, which involved 2 Live Crew’s parody of Roy Orbison’s recording of “Pretty Woman,” featured excerpts of both recordings. Table 1 presents an outline of the course’s content.

Table 1. Outline of Course Content

<ol style="list-style-type: none"> 1. IP overview and common-law misappropriation of “hot news” (1 week). The case law on misappropriation (e.g., <i>INS v. AP</i> (1918); <i>National Basketball Ass’n v. Motorola, Inc.</i> (1997)) provides a basis for understanding the nature of IP and the contrasting interests in its protection and use. 2. Trade secret (3 weeks) The law of trade secrets introduces students to the major non-statutory protection for IP; this has been a source of protection for software—and might again serve this purpose in light of recent patent cases such as <i>Alice Corp. v. CLS Bank Int’l</i> (2014). <ol style="list-style-type: none"> a. Existence and protection b. Misappropriation c. Remedies d. Inevitable disclosure 3. Patents (4 weeks) The heart of the course involves the major statutory protection for inventions; the material includes the Constitutional basis for IP protection, the relevant US code, and case law interpreting the statutes with respect to applying and qualifying for patent protection. There have been significant developments in this area in recent years (e.g., <i>Bilsky v. Kappos</i> (2010) and <i>Mayo Collaborative Servs. v. Prometheus Labs., Inc.</i> (2012). <ol style="list-style-type: none"> a. Introduction: Patent Clause, 35 USC 100 et seq., example of patent b. Claim construction, definiteness, and adequate disclosure c. Patentable subject matter d. Utility e. Novelty and statutory bars f. Non-obviousness 4. Copyright (2 weeks) While not as relevant to technology innovators as patent law, copyright law offers students an understanding of protecting the expression of their ideas; the course covers, too, what is <i>not</i> protectable (e.g., <i>Feist Publications, Inc. v. Rural Telephone Service Co.</i> (1991)). 5. Preparation for moot-court appellate arguments (1 week) 6. Midterm exams, exam preparation, exam review (2 weeks) 7. Project reports (2) (1 week)

Delivery

The course provided students with a preview of law school, including use of a law-school IP textbook, but with greatly advanced pedagogy, including explicit learning outcomes, practice tests, practice arguments, and real IP attorneys as moot-court judges.

The first two editions of the course used a traditional law-school casebook, which provided both a solid foundation in IP law and the look and feel of law school. However, important developments in IP law in 2012 and 2013, including the America Invents Act and cases such as *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* and *Association for Molecular Pathology v. Myriad Genetics, Inc.*, rendered the casebook out-of-date, and revised editions were slow in coming. Accordingly, beginning with fall, 2013 semester, the course changed to a digital casebook¹ prepared by law-school faculty at Lewis & Clark College and at the University of Georgia. The new text was completely up-to-date, featured helpful commentary and study questions, and cost about one-fourth of the hardbound book. In class, the students refer to each day's case materials on their laptop or tablet computers.

The course's pedagogy, while retaining the intellectual rigor and much of the flavor of a law school course, builds on advances in teaching developed in and practiced by American colleges of engineering. These advances include explicit course outcomes, which have been refined from year to year based on outcomes assessment; this is discussed in detail below. While law students are expected to survive their courses with little or no feedback, undergraduate students expect and can benefit from frequent feedback. Accordingly, the course featured a quiz for most class sessions. The course also provided the students with take-home practice exams and, after a few days for the students to develop their answers, model answers. In the first edition of the course, in 2011, most of the learning occurred through Socratic dialogue between students and the instructor; practice in oral argument was limited to the last weeks of the semester in preparation for the moot-court appellate argument during the final-exam period. In subsequent editions, the course placed a greater emphasis on the practice of argument, using informal moot-court arguments as a means for students to develop their understanding of the material, their speaking skills, their critical-thinking skills, and their confidence. The instructor stressed that the course was a good venue to try new skills, particularly oral argument, as class participation was not graded, the other students would be as supportive an audience as the speaker would ever have, and the instructor could provide constructive feedback.

The informal moot-court appellate arguments during the semester built the students' skills and confidence so that they could argue successfully at the final examination session. This included practice in the formality of courts of appeals, such as beginning one's argument with "May it please the court," and addressing the judge as "your honor." Although the students' arguments, especially early on, were often awkward and uneven, it was possible to see the students grow in skill and confidence. For example, in one early class a student offered an argument that had an obvious flaw. When the instructor, serving in the role of judge, pointed out the reasons why the student's position could not possibly be correct, the student said "Oh, you're right!" and sat down. Later in the

¹ Loren, L.P., & Miller, J.S., (2014). *Intellectual property law: Cases and materials*. Semaphore Press. Available at www.semaphorepress.com.

semester this student came to class much better prepared and responded with counter-arguments when her position was challenged. The final moot-court appellate argument, carried out with a higher level of formality, took place before three or four experienced attorneys with expertise in IP law or in argument before judges. The instructor served as bailiff. Exchanges between judges and students were often lively, and the judges noted, with some surprise, how well the students—undergraduates, after all—had performed.

The course is designed to provide a student experience with high levels of realism. Each semester, students had two projects involving evaluation of patentability, based on pending patent disclosures from the university's Technology Transfer Office (TTO). Students worked, with appropriate non-disclosure agreements, on real commercialization projects and presented their project results to the inventors and the staff of the university's TTO. The second project, with a fresh round of invention disclosures, added to the students' skills synthesis by including analysis of patent non-obviousness, which can be a difficult concept to grasp. The university's TTO used the students' reports in their evaluation of university IP, which seems to have persuaded the students to be serious about their work because actual inventors were relying on them. The students' experience with these projects occasionally led to work in later semesters evaluating IP for the TTO.

The moot-court appellate arguments for final examination are based on prominent IP cases currently on appeal (or expected to be appealed) to the U.S. Supreme Court. In the 2013 course, these included well-known cases such as *Apple v. Samsung*, *WNET v. Aereo*, and *CLS Bank v. Alice Corporation*. The students used the lower-court opinions for their briefs and presented their arguments before a panel of attorneys experienced in IP law and in oral argument.

Assessment

In the current version of the course, the learning outcomes are assessed through two written midterm examinations, two team projects, and an oral final examination in the form of a moot-court appellate argument. Each time the course was offered, it was assessed both formatively and summatively. The formative evaluation included a student questionnaire for course feedback with respect to expectations and concerns (see Appendix A). The summative evaluation included analysis of project and exam scores with respect to intended outcomes. Based on these evaluations, the course was iteratively adapted to better serve the students. For example, the formative evaluation disclosed that the students were concerned that the engineering and pre-law students were competing with each other for grades. In that semester, and then at the start of the subsequent semesters, the instructor made clear that students were not competing across colleges and that they would be graded on separate scales.

For summative evaluation, Project 1 enabled assessment of learning outcomes associated with the impact on patentability of prior art, primarily with respect to novelty. In 2011, the teams' average Project 1 score was 69% of the possible points, which seemed low. For 2012, the students were provided with a grading rubric when the project was assigned. The rubric covered (a) content and organization, which included an introduction (main topic, preview), review of prior patents, review of other prior art, analysis or impact of prior art on proposed patent, and conclusion (summary, open issues) and (b) writing style, which included a list of problems to

avoid, such as overuse of passive voice, comma splices, and argument from belief. With this rubric provided, students in 2012 produced project reports that scored 84% of the possible points. While project scores have varied across subsequent assignments and years, the sharing of the rubric has kept average scores considerably above those from 2011.

Another change from summative evaluation involved extending the learning outcomes to include, at the synthesis and evaluation level, that the students prepare and deliver an appellate argument in an IP case. This change grew out of (a) the students' performance in oral argument, which in the first semester were ungraded and had considerable room for improvement, and (b) the relatively limited skill set produced through instruction that was exclusively Socratic. As a result, development of argument skills was included explicitly in the course's set of outcomes instead of relying on argument simply for evaluation of mastery of content.

The use of summative assessment continues. Analysis of detailed exam score data from the 2013 course suggests that (a) for patents, students are much better at spotting and analyzing issues than supporting their analysis with citation to case authority, and (b) for copyright, students are better at spotting issues than analyzing issues and supporting their analysis. For example, the 2013 students scored 72% and 62%, respectively, of the possible points for spotting and analyzing patent issues, and they scored only 27% of the possible points for supporting their analysis. The current edition of the course is being adapted to offer additional help for students in learning how to support their analysis.

Student reaction to the course has been overwhelmingly positive. Students entering the course typically did not have high interest in the subject matter, yet of students in the College of Engineering reporting at the end of the course each semester, 90% indicated that the amount they learned was above average or well above average. With the changes in the course such as providing rubrics at the time of the assignment, the students' ratings for clarity of assignments has increased monotonically, scoring (out of 5) 4.86, 4.88, and 5.00). Likewise, the students' ratings of the varied use of questions, discussions, lectures and/or group work, perhaps as result of the shift toward more oral argument, scored 4.77, 5.00, and 5.00. With the package of iterative changes in the course, students' overall rating of the course increased monotonically, scoring 4.69, 4.75, and 5.00.

Conclusion

Experience with the course suggests that undergraduate engineering students are able to understand and apply concepts of IP law. Course outcome measures, based on examinations, projects, and oral arguments, indicate that while there was variation across individuals, as a whole the class substantially achieved the course's learning objectives. The course facilitated this result by (a) introducing students to legal reasoning, which would have been assumed in a second- or third-year law-school course, (b) providing students with an overview of the U.S. federal legal system and the differences between common law and statutory law, (c) providing individual feedback and encouragement for legal argument, and (d) asking students to work on real projects in their project results that would actually affect the outcome of university decisions about protection of IP.

The students' post-course evaluation comments reflected both the unusualness of the course as an experience for students in technical majors and the enthusiasm with which they embraced the chance to learn. In 2013, for example, a student commented that

This class was very different to what computer science majors do, but nevertheless it was tied to computer science. It helped me see how I as a computer scientist can protect myself if I ever create an invention.

While the intent of the course is not to turn engineering and computer science students into lawyers, the course appears to provide these students with knowledge and skills in intellectual property law, critical thinking, and oral presentation that can serve the students well long after their graduation.

Acknowledgments

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APPENDIX A: Formative Questionnaire

Interim Course Feedback
Intellectual Property Law
Fall 2013

1. In this class I expect that my grade will be _____.
2. The pace of the course so far is
 - way too slow
 - too slow
 - about right
 - too fast
 - way too fast
3. I prefer the kind of class where
 - the instructor interacts with individual students via questions
 - the students work as teams in exploring cases
 - the students engage in appellate moot court arguments
 - other (explain:)
4. The most important things to me that I'm learning in this course are...
5. Here are my thoughts about the ways in which the instructor helped me prepare for the midterm examination:
6. I'd also like the instructor to know that...

APPENDIX B: Grading Rubric for Projects

Project Grading Rubric: _____
Intellectual Property, Fall, 2013

Content and Organization

Includes introduction (main topic, preview)

Reviews prior patents

Reviews other prior art

Analyzes impact of prior art on proposed patent

Ends with conclusion (summary, open issues)

Style

_____ Improper citation and reference	_____ Overuse of passive voice
_____ Instances of excess words	_____ Sexist language
_____ British expressions	_____ Lack of parallelism in lists
_____ Non-sentences	_____ Comma splices
_____ Independent clauses not separated by comma	_____ Dependent clauses separated by comma
_____ Inconsistent use of comma in lists	_____ Overuse of semicolons
_____ Misspelled words	_____ Argument from belief
_____ Tautologies	_____ Contractions
_____ Editorial “we”	_____ Ambiguous use of “it”
_____ Inappropriate use of foreign abbreviations and phrases	_____ Use of “allow” for “enable”
_____ Misuse of “begs the question”	_____ Misuse of “compose” or “comprise”
_____ Misuse of “data”	_____ Misuse of “hopefully”
_____ Misuse of “impact,” “effect,” or “affect”	_____ Misuse of “infer” or “imply”
_____ Misuse of “media”	_____ Misuse of “on the other hand”
_____ Misuse of “that” or “which”	_____ Uncapitalized “Web” or “Internet”
_____ Other	_____ Other
_____ Other	_____ Other