

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Abigail Barrow, PhD, is the director of the Massachusetts Technology Transfer Center in Boston, Massachusetts. La Royce Batchelor is a professor at the University of North Dakota and a startup coach for the Center of Innovation in Grand Forks. Alex Breger, JD, is project manager at the National Collegiate Inventor and Innovators Alliance in Springfield, Massachusetts. Nathalie Duval-Couetil, PhD, MBA, is an associate professor at Purdue University in West Lafayette, Indiana. Latanya Scott is a licensing associate at H. Lee Moffitt Cancer Center and Research Institute in Tampa, Florida. Jeffrey Skinner, PhD, MBA, RTTP, is the executive director of the London Business School in London, England. Phyl Speser, JD, PhD, RTTP, is CEO of Foresight Science and Technology in Comptche, California. Phil Weilerstein is the director of National Collegiate Inventor and Innovators Alliance in Springfield, Massachusetts.

Introduction

An understanding of intellectual property (IP) is an important skill set in today's increasingly dynamic, information-based economy. Awareness is especially important at academic institutions where many of society's brightest students first learn about and begin practicing innovation and entrepreneurship. Accordingly, university community members—including students, faculty, alumni, and administrators—should all have reasonable access to IP literacy. For students, this necessarily involves gaining an understanding of their institutional IP policy and how it affects their potential rights and obligations.

While the main purpose of a university's interaction with students is in the delivery of education, there are times when these students develop intellectual property. These inventions can occur, for example, when students are working on entrepreneurship projects, when they are working in the lab as part of a research experience, or during industry-sponsored Capstone projects. In some cases these inventions have real value,

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

and there are many examples of student activity—including that of undergraduates—resulting in the formation of viable businesses. Unlike faculty and graduate researchers whose contractual relationship with an institution tends to be quite formalized, undergraduates and masters students are not generally regarded as being employed by their university in the traditional sense. Accordingly, student-generated IP lies outside of the clear-cut employment context and raises a unique set of issues concerning ownership and other IP-related rights.

Depending on the policy of the university, newly generated student IP may be construed as belonging to either the institution or the student. In general, IP laws in each country—particularly those whose legal systems are rooted in English Common Law—grant default IP ownership rights to the inventor or author unless he or she knowingly agreed otherwise. For there to be a legally binding contract, there must also be consideration. That is, the university must give something in exchange for the student's rights to his or her invention. Thus university IP policy, when it comes to students, needs to be carefully thought out, clearly worded, widely disseminated, and fair.

¹ According to a recent study, “There is a lack of consensus among institutions on how to manage IP generated by undergraduates.” Not surprisingly, the policy that a given university implements tends to reflect its individual institutional priorities. For example, institutions trying to promote income may implement policies asserting broad ownership over most, if not virtually all, student IP. If this is the case, the institution needs to ensure that it invests in sufficient resources for making students aware of its IP policy and managing that IP to minimize risk and ownership disputes. In contrast, institutions less focused on revenue generation may assert little to no ownership over student IP at all.

This primer is not intended to prescribe how and when a university should claim ownership of student IP. Rather, the intention is to raise awareness of the key issues and decision points involved in the process. The remaining sections of this chapter will discuss and consider the major issues that an institution ought to consider in the course of developing and promulgating a comprehensive student IP policy that is efficient and consistent with institutional objectives.

As part of preparing this document, the authors have sought out and collected various IP policies from around the United States, Canada, and Great Britain to help consider the range of best practices that make for a fair and comprehensive student IP policy. (Some examples of student IP policies can be found at autm.net/policies.) As there is no single best answer, this chapter presents what the Student IP Policy Task Force learned through a set of accompanying scenarios that university Technology Transfer Offices (TTPs) may encounter in practice. (See the appendix.)

The appendix highlights what considerations might apply in these scenarios to help the institutions come to their own conclusions.

Scope and Purpose

Who Is a Student?

For the purposes of this document, a *student* is considered to be any individual registered in university courses who anticipates earning a degree, diploma, or certificate. He or she may be undergraduate (e.g., BS, BA) or postgraduate (e.g., MA, MSc, MBA, PhD). Some may also operate as employees of the university, while others may not. Analyzing the distinction between students enrolled in programs and courses that are primarily teaching-based versus those that are fundamentally research-based is a key point analyzed more thoroughly throughout the chapter.

The Need for a Specifically Enumerated Student IP Policy

Student involvement in institutional research activities is the most frequent context in which potentially destructive IP ownership issues tend to arise. Universities have an obligation to inject clarity into how their policies address student research participation. The worst outcome for both parties is the emergence of an IP stalemate—with neither the student nor the university feeling confident that they possess sufficient rights for pursuing commercialization. Under these circumstances, the IP and its associated value can diminish or even languish entirely before either party is able to capitalize. This outcome is economically inefficient and potentially risky for the university if, for example, the ownership conflict interferes with its legal obligation for facilitating the national patenting process.²

Key Issues

There are seven key issues that every institution should consider when developing and implementing an institutional IP policy or set of bylaws.

Institutional Objectives

- All universities pursue multiple missions and strategic objectives. The weight that a particular institution attaches to particular objectives relative to others will affect how it structures its student IP policy. For example, does the university care more about optimizing revenue (including income from the appropriation of IP) or innovation in general (including the resulting socioeconomic benefits)? This fundamental institutional priority necessarily factors into the school's IP policy calculus and is perhaps best-addressed explicitly rather than left to implication. Of course, these two goals are not mutually exclusive, and a well-implemented policy can promote the spread of innovation and help maximize institutional revenue.
- Revenue issues aside, is the university worried about missing out on particularly novel, high-profile, or prestigious inventions? In other words, does the fear of loss outweigh the need for gain? For example, what if there is a big winner and the university (or its officers) are blamed for not having negotiated effectively? The university wants to maintain its appearance as an attractive place for budding entrepreneurs, while simultaneously implementing a policy that minimizes its chances of losing out on especially valuable IP.

Significant-Use Criteria

- To what extent did student work resulting in the creation of new IP involve *significant use* of university resources? In this instance, significant use means economic rather than intellectual input, such as use of university facilities, support staff, and consumables. As a mainstay feature of many, if not most, existing institutional IP policies, significant-use language is problematic. It is also legally problematic that there are no known high-court decisions clearly defining this term and its significance with respect to student IP. For example, an inventive contribution may be highly significant in the traditional sense of the word, even though the accompanying use of university resources results in negligible marginal cost to the university. For a more detailed

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

examination of the specific factors and decision points involved in significant-use analysis, refer to the appendix, which discusses student IP scenarios.

Role of Existing Research Programs

- Does the new IP build upon the university's expertise and technology? This brings up issues of coownership and the terms on which the university's research staff and faculty "gave" the student access to proprietary information and/or provided guidance.
- Does the university wish to subsequently license the IP to a third party? If so, it may want to ensure that it has unencumbered rights to the entire package. Without proper handling from the outset, this particular problem is often exacerbated by the fact that licensing opportunities can arise years later, after the student has already left the institution.
- Is the IP arising from the project already encumbered? For example, does it fall into the definition of *foreground* under a third-party sponsored research project? In some ways this is the easiest situation to cope with since students can—and often are—legitimately asked to waive IP rights in exchange for the opportunity to work on a Capstone or similar project. (The alternative being a more abstract project with less-direct or formalized access to third-party resources.)

Contractual Enforceability

- What is the likelihood that a university could successfully enforce its asserted IP rights against a student? Although many nations have enacted laws encouraging universities to assert ownership over IP tied to federal funding—such as the Bayh-Dole Act in the United States—the separate issue of contractual enforceability should not be overlooked.³ An ambiguously written or substantively Draconian clause resulting in an ownership dispute could be construed in favor of the less-sophisticated party, which is virtually always the student in this case.⁴ Language involved in the definition of significant use is a particularly sensitive area and should be vetted carefully for enforceability.
- Does the institution's IP policy—or the manner in which it is presented or implemented—come off as coercing or duping unsophisticated students into signing away their rights? For example, by their agreeing as a default condition of enrollment to be bound cumulatively by an assortment of institutional terms contained within a

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

single student handbook. It is important not to interpret previous authority supporting institutional administrative policies in general as a rubber stamp of approval over all university IP clauses. With students unlikely to regard academic enrollment as contractual and unable to meaningfully negotiate the terms involved, any ambiguous or unduly burdensome IP provisions risk invalidation or severance and, therefore, pose a risk to the university.

Former Students and Alumni Relations

- The extent to which a university enforces IP rights under old contracts with former students is another important strategic consideration, particularly in the context of alumni relations. Institutions should consider who the former student is and how well-known his or her association is with this invention amongst members of the university community. A university that binds itself into claiming an especially popular or high-profile invention (particularly one that is already viewed as belonging to a particular alumnus) risks potentially harming alumni revenue without generating enough additional licensing revenue to offset the loss.
- Self-limiting the duration of its rights over former students and proactively reaching out to student inventors while they are still enrolled to assess the status of ownership are strategies that institutions can explore to anticipate and mitigate potential alumni issues.

Administrative Overhead

- Does the institution allocate sufficient resources for enforcing compliance with its stated IP policy? Many universities rely exclusively on officers and faculty for self-enforcement of the school's IP policy. Compliance is likely to suffer unless these procedures are clearly articulated and well-understood by the various parties involved—faculty and students especially.

General Strictness: Balancing Research Quality Versus Quantity

- Finally, the balance between maintaining strict IP rules and preserving the quality and depth of institutional research is a critical, overarching concern. An overly strict policy by itself may stifle interaction and sharing between student and research personnel—diminishing the richness and relevance of research projects across the board. Ironically, in this case the stricter policy—intended to broaden university IP ownership rights—may instead have the opposite effect of harming institutional licensing revenue via a loss in research quality.

Taught Courses Versus Research

When a matriculated individual develops IP on campus, the university must determine whether the person should be treated as a student or as a researcher under the school's IP policy in that particular instance. This important factual determination is not always as clear-cut as it might initially appear. For example, an undergraduate student might choose to participate in an independent study drawing upon and interfacing with an existing institutional research program. Likewise, a graduate researcher being paid primarily for his or her work in the lab might still be enrolled in traditional academic courses pursuant to his or her doctoral program. Therefore, a proper determination of student status cannot simply depend on the general enrollment status and must necessarily account for the facts of each scenario on a case-by-case basis.

Most institutions focus this analysis on the type of resources the individual accessed in the course of developing the IP at issue. Typically, the distinction is drawn between resources that are teaching- or study-based versus those that are primarily research- or industry-based. Teaching resources include all forms of instructional course content, course references and study materials, personalized instruction provided outside of normal class time, and so on. Once presented to students, the use and derivation rights in all teaching resources are transferred into the public domain, allowing students free access without raising significant IP concerns.⁵

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Determining student status can be especially difficult in the following three teaching contexts.

- *Project work:* A student engages in an independent project that substantively involves research but has little to no interaction with existing researchers and research programs. Should this person be treated as a researcher under the school's IP policy? See Scenario 3 in the appendix for a more-thorough discussion of the key factors and decision points involved in this type of scenario.
- *Extracurricular activity:* A student engages in an extracurricular venture entirely outside of his or her defined curriculum but makes incidental use of significant university research resources without formally engaging the university or understanding the consequences. Again, how should this person be considered under the institutional IP policy? See Scenario 1 and Scenario 3 in the appendix for additional discussion of issues likely to arise in this type of situation.
- *Mandatory coursework:* Especially in upper-level undergraduate classes and graduate programs, students are expected to do independent research as part of the educational process. As this research is a requirement for graduation, it is not clear how the significant-use concept applies. Again, significant use is discussed further in the appendix.

In contrast, research-based resources include all embedded programs and projects specifically structured and geared toward producing novel data and concomitant IP. Universities tend to actively pursue ownership, protection, and commercialization of research-generated IP, and researchers are less likely to retain any ownership interests regardless of their level of involvement or use of resources.

Furthermore, even if a school's policy formally designates a participating researcher as a student in some instance, the student's use of lab and other research equipment could very well trigger the school's significant-use provision—thereby leading the university to assert that the student has relinquished his or her ownership rights anyway.

Conceptually, the types of IP issues surrounding graduate researchers are no different from those of undergraduate students carrying out research projects. In practice, however:

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

- IP issues in the graduate context are more likely to arise simply because of the duration of the project, the access granted to such students, and the amount of information—both tacit and codified—exchanged as the student becomes a trusted and integral member of a research team.
- Graduates tend to be older and more mature, making them more likely to understand the complex legal and commercial interests attached to their research. Specifically, this enables them to better comprehend and anticipate IP issues and make tradeoffs between various projects with different IP structures, etc.
- The graduate admissions process and dialogue at many institutions is more likely to address the applicable field of research and associated IP issues directly. Graduates are therefore more likely to understand complex IP arrangements, and—from a contractual standpoint—reach a meeting of the minds with the university.

For these reasons, universities often implement distinct IP policies applicable to research students (usually doctoral degrees) versus those enrolled in teaching programs (usually undergraduate and master's degrees). Essentially, it is the nature of the activity, the involvement of the university—both via physical and intellectual resources—and the embeddedness of the research project that should be material, not simply whether the student is being paid by the university in some employment capacity.

Specialized Student IP Cases

Preexisting Student Intellectual Property

When a student enters the university with preexisting IP, he or she should be encouraged to disclose its existence before any further research or development work is undertaken using university resources. If the invention was not disclosed before additional development work is undertaken, then the student may be asked to show evidence of when and where the invention was made.

Capstone Design Courses

One area where student IP issues are often more prevalent is in the context of Capstone design projects. These projects typically involve collaborating with a private industry sponsor, granting the student valuable access to industry resources, but consequently inserting an additional party into the IP equation beyond just the student and the

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

university. Since Capstone projects more closely resemble the type of inventive work undertaken in actual industry settings, they are significantly more likely to result in the generation of commercially valuable IP than traditional undergraduate coursework. While many institutions have already enumerated an IP policy specifically addressing Capstone projects, the need for continued university awareness and leadership in this area is critical. Similar forms of independent study—such as service learning, senior theses, dissertations, etc.—can raise comparable IP issues and are discussed in the next section.

Capstone project structure and administration can vary significantly from institution to institution—creating a wide range of potential project scenarios and making it difficult to articulate a singular, uniform policy. The set of issues involved is perhaps best-understood in terms of two extremes. On one hand there is the classic Capstone scenario: a formalized arrangement in which students actively partner with an industry sponsor for a sustained period of time, using significant sponsor resources, and eventually producing a deliverable tied to actual industry products and services.

In the classic scenario, universities usually offer, and sponsors typically expect, unencumbered ownership over any resulting IP in return for their contributions to the project. Given the significance of the legal interests involved, universities offering these sorts of sponsored Capstone projects need—and in many cases already have—dedicated policies formalizing the respective rights between student, sponsor, and institution.

Service Learning Projects and Other Independent Studies

In addition to Capstone projects, institutions are also increasingly offering science, technology, engineering, and mathematics students the ability to participate in experiential education through community-oriented service learning and other hands-on projects. Unlike Capstone education—which tends to be quite formalized and industry-oriented—service learning occupies the other end of the spectrum, with projects varying greatly in scope and structure depending on the institution. Students may seek out some degree of collaboration with a third party or use varying degrees of industry or university resources, but typically these projects culminate in a purely academic report or evaluation as opposed to an industry-tied deliverable.

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Service learning projects raise threshold issues of: (1) how the project should be categorized under the school's IP policy and (2) whether the enumerated category sufficiently addresses the types of IP issues likely to arise in that project context. Such projects can take on numerous forms in which the student may or may not be working alongside other researchers, receive academic credit for the project, or develop a working relationship with an industry member or other third party. University technology transfer offices have a professional duty of care to ensure there is clear understanding concerning the presence or lack of institutional involvement in these types of relationships.

For example, a senior thesis in computer science might not engage any formal sponsorships—distinguishing it from the usual Capstone project and tempting the university to treat it as generic student IP. Suppose, however, that the same project implicates a host of copyright issues that neither the student nor the university have specifically contemplated or previously addressed in the technology transfer context. Without a project-oriented IP policy in place, ironing out the legal details for every iteration of student project on a case-by-case basis would be prohibitively expensive for most technology transfer offices.

Furthermore, with less than 30 percent of surveyed institutions promulgating IP handbooks or similar material to their students—an increase in university-led outreach and education apprising students of their IP rights is one area that could enhance student involvement in the technology transfer process at relatively low cost.⁶ This approach is discussed in greater detail in the following section.

Makerspaces

Many universities and colleges are creating and investing significant resources in the creation of Makerspaces. These facilities contain equipment (including 3D printers, laser cutters, and, in some cases, machine tools), workbenches, and a supply of materials to enable students to design and build small project prototypes and models that may or may not be part of their formal educational curricula. Access to these spaces is usually made available to all students, staff, and faculty at the institution and sometimes to students of other local institutions and members of the community as well.

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

In many, but not all cases, institutions have a clear policy that any IP developed within the Makerspace belongs to the inventors and not to the institution. As with many other policies, it is up to an individual institution to decide on the specific IP policy for these activities and ensure that participants are aware of the policy.

Similar concerns exist with respect to other student-focused entrepreneurship programs, such as student incubator and accelerator programs where new inventions may be discovered as part of a student's engagement. Again the tendency at institutions has been not to claim any IP ownership, but whatever the decision has been on IP ownership it is important to have a clear policy that is well-publicized.

Outreach and Implementation

If students are not familiar with their institution's IP policy yet voluntarily consent to it anyway, the policy risks not being fully legally binding on the student. To minimize this risk, effective student outreach is critical. Effective outreach in the student IP context has two key components: (1) spreading substantive awareness about the policy in general and (2) obtaining and documenting informed consent from students—especially those likely to be involved in IP-generating activities.

There are many mediums for available for disseminating a student IP policy including:

- posting it
 - on school or departmental websites
 - in newspapers and other publications
 - on departmental and dorm bulletin boards
- having it read
 - by faculty in classes
 - by administrators during welcome and other periodic check-in events
 - on the radio or TV on campus stations
 - in student governance and club sessions
- making it required reading
 - in student orientation booklets
 - in handouts for classes that include research projects
 - in consent forms for participating in internships, co-ops, lab and teaching assistantships, fellowships, and other work or practical experiences programs

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

This list is by no means exhaustive.

As with any outreach effort, placing the message in communication channels already monitored by the targeted audience is helpful and usually most-effective. The structure of these channels will vary from campus to campus, making it important for each institution to conduct its own independent analysis. Obviously, it helps to make the informed consent process as easy and inviting to students as possible.

Both web- and print-based documents can serve as integral components of an ideal outreach strategy. For example, when students register for classes, the student IP policy could pop up similar to an end-user licensing agreement, which must be read and clicked on before the student navigates away from the page.⁷ In addition, faculty could be asked to reference the policy in their syllabi and indicate how students can access it more fully.

For students who are also research or teaching assistants, IP policies are often embedded as a clause in their employment contract or a signed addendum. From the university perspective, these students may be treated no differently than any other employee being asked to surrender prospective IP rights in exchange for employment, and the significance of what they are purportedly agreeing to may not be made clear to the student at the time of signing. Structuring the student IP policy similarly to the faculty/employee IP policy is one way to increase faculty outreach—as faculty members will be in a better position to advise students on IP issues using their knowledge of the policy. However, institutions should take care that IP clauses in student employment contracts are sufficiently conspicuous or else students may not know to approach faculty for guidance in the first place.

One issue with traditional media is the lack of bidirectional, question-and-answer type dialogue. Thus, a periodic seminar on commercialization of student inventions at the beginning of each semester, quarter, and so on, could be another valuable outreach tool. A repeat forum of this sort helps ensure that those who are most likely to encounter IP issues have an opportunity to contemplate and ask clarifying questions about the policy and innovation in general. It also helps to have one person in your technology transfer office designated as the lead for student IP-related issues. This person's job could include maintaining an online frequently asked questions database to accompany the policy,

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

providing official interpretations of the policy upon request, and acting as the point person for student IP questions and issues in general.

Conclusion

Increased proliferation of student IP literacy remains a challenging, but feasible goal. The standard hands-off approach is not an optimal solution for maximizing the economic and societal value of student innovation as a whole. Through open communication, hard work, and modest policy revisions, the entire technology transfer industry can mutually benefit from a race-to-the-top to maximize student IP. Furthermore, this issue largely transcends individual institutional revenue models and financial priorities—presenting a unique opportunity for industrywide cooperation and improvement.

For more information contact the Association of Technology Managers (www.autm.net) or the National Collegiate Innovators and Inventors Alliance (www.nciia.org).

Acknowledgements: The Student IP Task Force would like to acknowledge the organizational and editorial contributions of co-author Alex Breger, project manager at the National Collegiate Innovators and Inventors Alliance.

Notes

1. Nathalie Duval-Couetil, Jessamine Pilcher, Phil Weilerstein, and Chad Gotch, “Undergraduate Involvement in Intellectual Property Protection at Universities: View from Technology Transfer Professionals,” *The International Journal of Engineering Education* 30-1 (2014) 60–71.
2. This is particularly relevant in countries with legislation requiring universities to facilitate the tracking and capture of (usually via patenting) institutionally generated IP. See e.g. Bayh-Dole Act, 35 U.S.C. § 200-212 (2012) (containing relevant technology transfer statute under U.S. law). Other countries including Brazil, China, Japan, and most EU members have also enacted similar legislation. “Bayh-Dole Act,” AUTM, accessed January 24, 2014, http://www.autm.net/Bayh_Dole_Act1.htm.
3. See e.g. 35 U.S.C. § 202(a)–(c) (permitting nonprofit institutions to retain ownership over IP created pursuant to federal funding; resulting in promulgation of many modern-day institutional IP policies). See also *Chou v. University of Chicago*,

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

254 F.3d 1347, 1356-57 (3d Cir. 2001) (holding matriculation as academic student sufficient to bind student to general institutional IP policies despite lack of separately signed agreement).

4. See *Stanford v. Roche*, 131 S. Ct. 2188 (2011) (upholding third-party ownership claim over subject IP where institution's ambiguous language of assignment failed to effectuate transfer of rights from student to university).
5. See e.g. 17 U.S.C. § 107 (2012) (setting forth U.S. copyright fair-use provisions and referencing House Judiciary Committee, House Report No. 94-1476 indicating clear legislative intent that fair use apply in academic teaching contexts).
6. Duval-Couetil et al., *supra* note 1.
7. See 15 U.S.C. § 7001 (mandating that electronic signatures be given full contractual effect). The E-Sign Act in the U.S. and others like it around the world help ensure that "click" signatures and other forms of digital contracting remain a viable mode of exchanging contractual rights and obligations.

Appendix: Student Intellectual Property Scenarios

The following scenarios were developed to illustrate situations in which students may develop or participate in the development of new intellectual property (IP) and how technology transfer offices (TTOs) and other academic administrators may approach a determination on ownership. All presumptions grouped with a particular conclusion must be true in order for the associated conclusion to apply.

Scenario 1

An individual or group of registered students who conceive and develop a new business idea in their dorms. The idea may or may not be inspired or draw upon their course material or assignments (all of which are assumed to be public domain) and makes only incidental use of university resources, therefore resulting in zero or negligible additional cost to the university.

Decision Point 1: Students conceive and develop an idea independent of their formal studies, drawing on their own insights and technical skills. The students make no specific use of university resources while developing their idea.

Presumption 1a: The students receive no guidance or input from any staff, faculty, or administrators at their university.

Conclusion 1: Defaults to wholly student-owned IP. The university takes no equity and is willing to execute an IP waiver if requested.

Decision Point 2: Students make incidental use of university resources to develop their idea, for example the use of generic equipment, laboratories, computers, meeting rooms, and other publicly accessible resources.

Presumption 2a: The students receive no guidance or input from any staff, faculty, or administrators at their university, except for assistance from technical staff with respect to the generic resources used.

Presumption 2b: The university incurs zero or negligible marginal costs in relation to the resources used.

Conclusion 2: Defaults to wholly student-owned IP. The university takes no equity and is willing to execute an IP waiver if requested.

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Decision Point 3: Students draw upon the time, knowledge, or networks of technology transfer (or other professional, nonacademic) staff at the university.

Presumption 3a: The TTO does not incur any direct expenditures (patent, legal, consultancy, proof of concept, etc.) in the course of administering such advice.

Presumption 3b: At the time of providing said advice, the TTO does not enter into any formal arrangement with the student pertaining to IP ownership, IP rights, or a monetary sum sought in consideration.

Conclusion 3: Defaults to wholly student-owned IP. The university takes no equity and is willing to execute an IP waiver if requested.

Decision Point 4: Students draw upon the expertise and knowledge of a faculty member at the university.

Presumption 4a: Faculty input amounted to no more than advice/consulting on where to locate information or other general considerations pertaining to development. The faculty member's communications cannot have conveyed ideas constituting an inventive step.

Conclusion 4a: Seek verification and waiver from the relevant faculty member.

Otherwise defaults to wholly student-owned IP. The university takes no equity and is willing to execute an IP waiver if requested.

Presumption 4b: Faculty communications amounted to assistance that may constitute an inventive step or otherwise create a joint author or inventor situation. However, such assistance did not draw upon existing intellectual property arising from the faculty member's ongoing research.

Conclusion 4b: Co-ownership by faculty may be warranted. The university may wish to waive any rights to IP generated by students or faculty. However, the students should be advised to seek assignment of IP from the faculty member.

Decision Point 5: Students engage in significant use of university resources while conceiving of or developing their invention or work of authorship.

Presumption 5a: The resources used are only those commonly accessed as part of the normal educational or dormitory-living experience.

Conclusion 5a: The university should view any emergent IP as a normal consequence of the educational experience and disclaim any ownership interest.

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Presumption 5b: These resources used result in additional expenditure by the university, but do not constitute the use of any proprietary equipment, specialized resources, or other intellectual property.

Conclusion 5b: The university may consider charging a reasonable sum for the use of resources.

Presumption 5c: The students make use of or incorporate the university's intellectual property.

Conclusion 5c: A formal IP license to the new venture will be required in anticipation of future due diligence by an investor. This will necessitate formal involvement by the TTO. Such input may warrant the university seeking a stake in the new venture as well.

Scenario 2

Students conceive and develop an idea as part of their formal studies—typically an assignment or project for credit. They may receive input (guidance, technical advice, referrals, etc.) from faculty supervisors, and the development of the idea may result in some direct costs to the university (e.g., inexpensive consumables, laboratory time, significant computing resource, etc.). However, this input and resource allocation are no greater than that budgeted for any student coursework or project activity.

Decision Point 1: Students conceive and develop an idea as part of their formal studies: an assignment or project. Students were assigned the task of developing said idea by an instructor to fulfill a course requirement.

Presumption 1: The instructor provides little to no direct input toward the initial idea conception, only a general topic or problem to be addressed by the student.

Conclusion 1: Defaults to wholly student-owned IP. The university takes no equity and is willing to execute an IP waiver if requested.

Decision Point 2: Students may receive input (e.g., guidance, technical advice, referrals, etc.) from faculty supervisors. Improvements or modifications to the idea may have resulted directly from suggestions by the faculty supervisors, resulting in potential for co-ownership of the final IP.

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Presumption 2a: Faculty input amounted to no more than advice/consulting regarding where to locate information or considerations for development, not complementary ideas to make the idea more functional or improved.

Conclusion 2a: Defaults to wholly student-owned IP. The university takes no equity and is willing to execute an IP waiver if requested.

Presumption 2b: Faculty input amounted to assistance above and beyond what was required or necessary for completion of the assignment.

Conclusion 2b: Co-ownership by faculty member may be warranted, and the institution would therefore likely have rights assigned to it in accordance with its employee IP policy.

Decision Point 3: Development of the idea may result in some direct costs (e.g., inexpensive consumables, laboratory time, significant computing resources, etc.). Concrete “threshold value” for when resources used for IP development are significant to the institution.

Presumption 3a: Resources used are no greater than budgeted for any student coursework, and those resources are provided to the student in exchange for the students’ payment of tuition, fees, etc.

Conclusion 3a: Default to student-owned IP since the institution did not contribute resources to the student above and beyond what was allocated to him or her for completion of his or her coursework

Presumption 3b: Resources used include extra laboratory time above and beyond that allotted for coursework or specialized lab time requiring additional training or supervision by institutional employees were needed to develop the IP.

Conclusion 3b: This may constitute use of significant resources by the institution’s standards. Establishing a threshold value for resources that contributed to the IP is key in this situation. If significant resources were in fact used, then the institution should have a proportionate amount of rights assigned to it.

Overall Conclusion: In most cases, if institutional input is minimal or in accordance with the expected resources available to students for completion of coursework, then this scenario describes student-owned IP. Key considerations in this case are primarily financial and should include: (1) whether IP was generated as a part of routine coursework and (2) the measurable extent of institutional resources accessed (as

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

represented by workspace, employee time/effort, reagents, additional funding, etc.) by student that are deemed included with student tuition and fees.

Scenario 3

Students embark upon an independent research project not part of their studies. This project necessitates significant use of university equipment and is likely to draw on the expertise and knowhow of faculty and other research staff. Students may be treated like any other researcher drawing on specialized technical assistance and facilities of the university as well as consumables. One way or another the university adds significantly to the success of the project by subsidizing it and may even (if only incidentally) make an inventive contribution.

Decision Point 1: Who are the formal inventors or authors? Who as part of the project substantially participated in the conception of the invention or expression of the creative work?

Presumption 1a: The project was developed jointly by the student and members of faculty or research staff. This will result in co-ownership of the IP.

Conclusion 1a: The university will have some rights to the IP from the assigned rights of the co-inventors/coauthors. The TTO will proceed with protecting the IP, but will need to enter into an agreement with the student either getting him or her to assign his or her rights to the institution or developing an interinstitutional agreement (IIA) that gives the university the lead in protecting and licensing.

Presumption 1b: The invention or work of authorship was developed solely by the student.

Conclusion 1b: The university may or may not elect to pursue ownership depending on how significant the institutional resources used in the development of the IP are judged to be. (See Decision Point 2 for further discussion.) The university may decide not to take any ownership and will not pay to prosecute a patent or otherwise commercially exploit the IP. Furthermore, the university needs to ensure that it does not automatically assume any liability despite its intent not to pursue ownership. The student may be directed to other university resources that will help him or her pursue commercialization of his or her IP.

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Decision Point 2: How significant was the university contribution?

Presumption 2: The resources used in the development of the IP were significant vis-à-vis the use of expensive equipment not normally available to students, support staff time to assist with experimentation, or institutional trade secrets.

Conclusion 2: The university can assert that it has rights related to the project because of its investment of significant resources. However, the university should ensure that it was made clear to the student in advance of using institutional resources that such use would enable the university to claim ownership over resulting intellectual works. This would have enabled the student to decide not to undertake the project using the same extent of university resources.

Decision Point 3: What does the student want to do?

Presumption 3a: The student wants to retain his or her ownership of the invention or work of authorship.

Conclusion 3a: This situation may be problematic if the university wants to enforce its ownership rights as a result of its investment of significant resources. The institution will need to reach an agreement (usually in the form of an IIA) with the student so that the parties' respective IP rights can be settled. This is especially important if there are co-inventors/coauthors who have already assigned their rights to the university. The absence of an agreement here creates a risk for both parties going forward even if the institution has a broad significant-use policy in place.

Presumption 3b: The student wants to assign his or her rights to the university.

Conclusion 3b: The student will be treated as a co-inventor/coauthor. As part of assigning his or her rights to the university, there will be a negotiated share of revenues resulting from the IP that will be assigned to the student. The university will proceed with protecting and licensing the technology.

Decision Point 4: What does the TTO want to do?

Presumption 4a: The TTO decides that there is value in the inventive or creative work and that it has a significant claim of full ownership over the IP.

Conclusion 4a: The university negotiates with the student to assign IP rights to the university, and then pays to protect the technology, manage all ensuing licenses, and distribute royalties to the inventors and other stakeholders.

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Presumption 4b: The TTO decides that there is little value in the invention and decides not to assert ownership.

Conclusion 4b: The technology belongs to the student, and the student is free to protect and commercialize the technology.

Overall Conclusion: There are many factors involved in this scenario, and the TTO ultimately has to make a decision involving how strong of a claim it has over the IP relative to how much it wants to invest protecting and licensing it. The TTO also needs to ensure that students entering into this type of situation are briefed before any significant inventive actions are taken. In the ideal outcome, the student will assign the IP to the institution and enjoy a share of any revenue stream. In the worst outcome, the student and the university enter into a very public battle over rights which—despite potentially being winnable in court—will do little to aid the public image and reputation of the institution.

Scenario 4

Students are invited by a faculty member or other university employee to play a part in an existing project or research program—which may be funded from external sources (and may be formally sponsored by an industry member).

The student is not forced to accept the project, but sees it as a groundbreaking opportunity that will increase employability and marketable skills. He or she will probably generate new IP, and such IP may be the subject of a patent filing on which the student would be co-inventor. To make a full contribution and maximize learning, the university intends for the student to be an integral member of the research team—privity to confidential information and other knowhow available to the project. Ideally, there should be a clause in the student handbook or guide setting forth the circumstances under which students can reasonably expect the university to pursue ownership of student-generated IP.

Decision Point 1: Who are the inventors or authors? Who as part of the project actually participated in the conception of the invention or expression of the creative work?

Presumption 1a: The student is an integral part of the team and contributed significantly to the conception of the idea or expression of the creative work.

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

Conclusion 1a: The student is a co-inventor or coauthor.

Presumption 1b: The student is an integral part of the team, but does not contribute significantly to the conception of the invention or expression of the creative work.

Conclusion 1b: Legally, the student is merely an observer with respect to the act of invention, in which case the student is not a co-inventor. The same considerations that apply in determining whether a faculty member is an inventor also applies in the student scenario. A student's subjective belief regarding whether he or she should be listed as a co-inventor is only relevant if objective data supports that he or she actually made a substantial contribution. The fact that students often think mere participation in an R&D project automatically conveys co-inventor status highlights the need for additional IP outreach and literacy targeted at students who participate in research projects.

Decision Point 2: Who owns the IP?

Presumption 2a: The student is not being hired to work on the project by either the company or the university. If this were a work for hire, then the terms of the employment contract would affect ownership of the IP—for example, if the contract explicitly stated that all inventions belonged to the employer.

Presumption 2b: The invitation to work on the project is not made contingent on signing away rights to the IP, in which case a contract would likely exist supported by mutual consideration between the university and the student. If nothing explicit is said, there is no reason for the student to infer they are relinquishing rights simply by accepting the invitation.

Presumption 2c: There are significant university or third-party sponsor resources used to conduct the work—such as lab equipment, computers, databases, chemicals, etc. The key issue here is whether the student is participating as a normal part of his or her educational experience or if the activity in question lies outside the typical educational package. Since students attend the university primarily to get an education, the presumption has to be that in the absence of other evidence, nonformalized research activities are a normal part of their educational experience. This presumption is strengthened by the fact the student's participation was invited by the university or one of its representatives. All people in universities are not equal. Faculty and staff members have a certain power over students, both in terms of

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

grades and contacts/references for future graduate education and employment. Such invitations may not be easy to turn down.

Presumption 2d: The university agreed with a sponsor or funding agency to relinquish its rights or provide a no-cost license/right of first refusal over any resulting inventions. Here, the third-party agency can claim assignment of ownership or other IP rights from the university, but not until the university has secured title from all co-inventors/coauthors. These rights can be secured through employment contracts or purchased directly from the inventors. For students, if a good case can be made that the project was not part of the normal educational experience, then an advance participation contract might be appropriate. Consult counsel before implementing one of these as such contracts are governed by local law.

Conclusion 2: English Common Law and other prevailing legal systems presume that inventors retain ownership of their inventions unless they choose to relinquish it. Therefore, the university must be able to show that the inventor not only had reason to relinquish his or her rights, but did in fact do so. Explicit documentation with a clear informed consent on the part of the potential inventor is necessary to demonstrate this. This principle was central to the holding of the U.S. Supreme Court's landmark decision *Stanford v. Roche*. (See [Stanford v. Roche: Supreme Court Clarifies Intellectual Property Ownership](#) by Kimberly Honeycutt, PhD, in Volume 2 of the Technology Transfer Practice Manual.)

The need for explicit documentation and informed consent is especially important when students are involved. First, since the students are attending school to get an education, virtually every part of the university or college experience can arguably be seen as part of the normal educational experience. Participating in a research project (whether internally funded, externally funded, or merely a faculty member or teaching assistants's self-funded work) must therefore presumptively be treated as part of the student's usual educational experience unless there is strong evidence of informed consent to the contrary. Furthermore, since students are generally unsophisticated parties in the legal sense, any contractual arrangement with them should be treated carefully (especially contracts of adhesion with which the student has had no say in negotiating—e.g., the blanket undergraduate enrollment agreement signed by every student upon enrollment). A specific, written contract in plain, easily understood language is highly recommended if you need to vest ownership in the institution or third party.

Decision Point 3: What should the TTO be doing?

Presumption 3a: The TTO has developed and posted on its website material for students and third-party collaborators clarifying how the institution treats students with respect to IP. The TTO should make sure that collaborators, project leaders, university employees, and all participating students know how to access this information, have accessed and read the information, and do in fact agree with the terms. Ideally, students should be encouraged to send back documentation and other feedback acknowledging that they have read and understood the applicable IP policy. If they do not understand or agree with its terms, students should be encouraged to ask questions or raise concerns. Unlike, for example, the dense and layered end-user license agreements often presented in the context of new software, IP documentation presented to students should be in plain and easy-to-understand language, and a receipt of acknowledgment should be a condition precedent for moving forward with the project.

Presumption 3b: The project is already off and running by the time the TTO finds out about it. The TTO should ensure that everyone involved understands and agrees with the university's policy on student participation in creating IP. If there is disagreement and participants will not agree to sign informed consent, the appropriate person(s) in university management should be informed that a potential liability issue has emerged.

Presumption 3c: Student IP is created, and all parties unambiguously agree that the university owns it. It is treated like any other IP created at the institution.

Presumption 3d: Student IP is created, but the student has not consented to relinquish rights to the university. The TTO needs to communicate to the student how it sees the student's rights relative to the university's. Ideally it would negotiate with the student to obtain rights in exchange for the typical inventor's share of revenues. The usual policy for treatment of outside co-inventors on inventions made with university employees should apply.

Overall Conclusion: Inventors automatically own their invention unless they agree to part with their ownership rights. The key difference when dealing with student inventors versus other institutional inventors is that students are: (1) there primarily to learn and (2) in an unequal power relationship relative to faculty and other university personnel. These issues mean that clear policies and informed consent are critical before asserting

Managing Student Intellectual Property Issues at Institutions of Higher Education: An AUTM Primer

Abigail Barrow, PhD; La Royce Batchelor; Alex Breger, JD; Nathalie Duval-Couetil, PhD, MBA; Latanya Scott; Jeffrey Skinner, PhD, MBA, RTTP; Phyl Speser, JD, PhD, RTTP; and Phil Weilerstein

university ownership of student-generated IP (especially where university ownership is necessary to honor and effectuate a contractual conveyance to a third-party sponsor/funder).

It is insufficient for the university to depend solely upon catchall significant-use language to secure IP ownership. This is precisely because of how difficult it is to say what is or isn't outside the scope of the normal educational experience at an institution of higher education. So while a formal policy on student IP is highly advisable, good policies without adequate and thorough dissemination mean little on their own. Neither does the fact a student has read the applicable IP policy—achieving true informed consent status requires a proactive stance. The university needs reasonable IP policies, and students should agree with those policies before they are permitted to participate in research projects. As demonstrated in *Stanford v. Roche*, an ounce of prevention is worth a pound of cure.