

## Lessons from Starting an Entrepreneurship Program

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### 1. Introduction

The W. P. Carey Program in Entrepreneurship & Management is housed in the Mathematical Sciences Department of the Whiting School of Engineering at Johns Hopkins University. It concentrates on preparing undergraduates to become founders and leaders of major enterprises later in their careers. The academic program provides basic business education courses in accounting, finance, ethics, and marketing, plus advanced courses in entrepreneurship, information technology management, intellectual property protection, organizational development, negotiation and conflict management, internet law, and internet marketing. Experiential learning opportunities include internships for credit, a business plan competition, a student-managed investment portfolio, a student business society, a Wall Street trip (including resume critiques and mock interviews), and an intersession course with alumni entrepreneur speakers. Currently in its sixth year, the program has had many successes and encountered substantial obstacles and setbacks. This article describes the difficulties of starting an entrepreneurship program in a mathematics department at a university which does not have a business school, and discusses lessons learned which may be helpful to others who are developing entrepreneurship programs.

### 2. A Brief Description of the Entrepreneurship & Management Program

Johns Hopkins University is a leading research university, located primarily in Baltimore, Maryland, with satellite campuses throughout the Baltimore – Washington DC area, as well as in Italy, Germany, Singapore, and China. Students at Hopkins are extremely bright, creative, and ambitious. The undergraduate student enrollment is approximately 4000, from nearly all states and many foreign nations. The admissions process is very selective, and the admitted students have combined Verbal and Quantitative SAT scores averaging well over 1400. Approximately two-thirds of these students major in the School of Arts and Sciences, and the other one-third major in Engineering. The largest undergraduate majors are Biomedical Engineering, Biology, Computer Science, Economics, and International Relations.

The W. P. Carey Program in Entrepreneurship and Management, founded and directed by Prof. John C. Wierman, operates within the Mathematical Sciences Department of the Whiting School of Engineering at the Johns Hopkins University. It provides a variety of academic and experiential learning opportunities to prepare undergraduate students in both the School of Arts and Sciences and the School of Engineering for careers as founders, leaders, and managers of

enterprises. The program offers a variety of courses in business, taught by adjunct faculty members, including several courses per semester on topics in entrepreneurship. The program has attracted three major endowment gifts, totaling over two million dollars, to support its activities. The program is growing rapidly and developing a solid base, but is not able to meet the strong demand for entrepreneurship education, and does not yet provide a complete range of entrepreneurship course topics.

The following subsections describe the major activities of the W. P. Carey Program.

## 2.1 The Entrepreneurship & Management Minor

An undergraduate minor was founded in 1996<sup>1,2</sup>. The minor requires 23 semester credits in a minimum of seven courses spread over five areas: Quantitative Methods, Business and Finance, Leadership and Organizational Behavior, Operations, and International Trade. Courses offered by 15 different departments may count toward the requirements, with students having considerable flexibility to follow their interests. During the past academic year, the number of students who have formally declared the minor has ranged from 100 to 160, although many others who plan to complete the minor have not yet formally declared. The program awarded 71 students the minor in the 2001-2002 academic year.

## 2.2 Course Offerings

The program is funded by an endowment donated by trustee William P. Carey, founder of W. P. Carey LLC, a real estate investment firm. The program has been able to develop and offer business courses that were not previously available to Hopkins undergraduate students. The courses are: Introduction to Business, Financial Accounting, Managerial Accounting, Corporate Finance, Business Law, Case Studies in Business Ethics, Business Process and Quality Management, Information Technology Management, Intellectual Property Protection, Law and the Internet, Principles of Marketing, Marketing Strategy, Internet Marketing, Entrepreneurship, Financial Institutions and Capital Markets, Organizational Development, Human Resources Management, and Negotiation and Conflict Management. Many of these courses are offered every semester at multiple times. There is strong demand and substantial “wait lists” for many of the courses, which have enrollment limits to maintain the quality of interaction with the lecturers. Enrollments have grown to over 700 students per semester. Adjunct lecturers for the courses are practicing professionals with substantial teaching experience at business schools. In 2002, lecturer Josh Reiter received an Alumni Society teaching excellence award.

## 2.3 Intersession Course

The program offers a very popular one-credit “Invitation to Entrepreneurship” course during the January intersession between semesters. It has been running for 6 years, with enrollment of 125 students in January 2002. The course is supported by an endowment gift from trustee Joseph Reynolds, founder of FTI Consulting. The one-week course features 10 to 12 entrepreneur speakers who have successfully developed their inventions and ideas into businesses. The speakers are mostly Hopkins alumni, including Michael Bloomberg, Kwok Li, and Gilbert Levin, *Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition*  
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who come back to campus to share their success stories, advice, and expertise with undergraduate students. The short course format is easy for busy entrepreneurs to fit into their schedules, but provides an intense and meaningful experience for the students. We work closely with an enthusiastic alumnus entrepreneur, Harvey Kushner, to plan and develop the program for the course each year.

#### 2.4 Business Plan Competition

The program has sponsored an annual business plan competition for the past three years. The competition offers a \$5000 first prize, and is open only to Hopkins undergraduates. Competing students and teams are matched with alumni entrepreneurs and businesspeople as mentors, and a team of alumni entrepreneurs and venture capitalists judge the plans. In addition, in 2002, we encouraged Hopkins students to compete in an area-wide business plan competition, the Mosh Pit, which is sponsored by the Greater Baltimore Technology Council. Hopkins teams won first and third prizes in competition with MBA students from business schools in the area.<sup>3</sup>

#### 2.5 Internships

The program provides internship opportunities in business for college credit. Students must submit an application including a resume, statement of interest, and transcript. To be selected, a student must have grades that are above average and sufficient course preparation for the internship to be a significant learning experience. Interns have been placed at Alex Brown, Prudential Securities, Morgan Stanley, Legg Mason, Miramax, the Baltimore Orioles, the World Trade Center (Baltimore), and at firms in China and India. In some cases, interns were hired by the companies after graduation and are now mentoring other interns.

#### 2.6 Marshal Salant Student Investment Portfolio

In collaboration with the School of Arts & Sciences and the Treasurer's Office, each year a team of students is selected to manage a \$100,000 portfolio donated by alumnus Marshal Salant, a managing director at Morgan Stanley. A portion of any earnings is used to fund undergraduate scholarships.

#### 2.7 Alpha Kappa Psi Business Society

The program helped form, and supports and encourages, the local chapter of the national business society Alpha Kappa Psi. Through it, Hopkins students can receive business and leadership training at workshops organized by the national society. Professor Wierman serves as the faculty advisor for the Hopkins chapter.

#### 2.8 Wall Street Trip

In collaboration with the Career Center and the School of Arts & Sciences, a small selected group of students visit several investment banks and financial firms in New York City at the end of the January intersession. The program includes resume critiques and a mock interview, to prepare

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them for the employment search process at investment banks and other financial firms.

### 3. Strategies for the Hopkins Environment

We now describe aspects of the Hopkins environment that shaped the development of the Program, and the strategies that were developed in response to this environment. While the Hopkins environment is unique, we hope this discussion is useful to others who are planning to start an entrepreneurship program.

Three concepts are the keys to understanding the Hopkins environment. Johns Hopkins University is the nation's first "research university." The Hopkins philosophy of "selective excellence" means that it concentrates on a small number of activities with a goal of leadership in those areas. "Decentralization" is the organizational philosophy of the university, where schools, departments, and faculty members are given considerable autonomy to chart their own course, and considerable responsibility to fund their own activities. The influences of these concepts are a mixed blessing, both helping and hindering the formation of an entrepreneurship and management program.

The research emphasis at Hopkins provides considerable flexibility to faculty members and departments, which allows them to adapt quickly to pursue new research opportunities. This is a very entrepreneurial atmosphere, in which each faculty member is essentially building his or her own business, with revenues from grants and contracts and with graduate students as employees. The research emphasis also means that most faculty members are focused on their research activities, showing little interest in campus politics, so there is relatively weak faculty involvement in campus governance. Similarly, there is less oversight of education and curriculum matters than at other universities, particularly in undergraduate education. For example, new courses can be created without any approvals from outside the home department.

Decentralization means that there are few barriers to starting a new project, but little assistance provided to support the new effort, or to help a project through temporary difficulties. Funding is also quite decentralized: In the Engineering School, departments receive a block budget based primarily on the level of research contracts and credit hours taught.

Due to the selective excellence philosophy, Hopkins has achieved leadership in the fields of medicine and public health, but does not have a business school, law school, or education school. (It does offer some business and education courses through an evening continuing education program, but these courses are not open to the full-time undergraduates that the W. P. Carey Program serves.) Consequently, there are no business faculty members to initiate and staff an entrepreneurship program, no business graduate students to serve as teaching assistants for a program, and no education faculty to assist in training entrepreneurs to be lecturers or in training students to be teaching assistants. However, there was a large unsatisfied undergraduate student demand for courses in business and entrepreneurship.

*Ironically, in view of the research emphasis in the Hopkins environment, it was unrealistic to*  
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consider starting a research-based entrepreneurship program, funded by grants and contracts, since there were no full-time faculty researchers. However, it was possible to build a program based on teaching undergraduate business courses. Strong student interest could generate high enrollments, which would provide a stable and rapidly growing revenue stream, due to the budget algorithm in the Engineering School. New courses could easily be introduced, with approval needed only within the department. Thus, our program was created with a strong emphasis on educating undergraduate students about business, entrepreneurship, and management, and little or no emphasis on research.

A conservative financial philosophy is dictated by the environment, since any budget deficit by the program could ultimately lead to closure of the program. Three financial strategies have been important for the survival and growth of the entrepreneurship program. First, we have always budgeted for a substantial reserve fund, in case of emergencies or missed revenue projections. When not needed for those purposes, the funds have enabled us to take advantage of new opportunities, such as funding new courses or attending conferences for professional development. Second, we have not introduced a new course unless we expect it to generate sufficient revenue to pay for itself after the first experimental offering. Third, for non-revenue-generating activities, we do not start a new activity until we believe that we will have the financial resources to support it indefinitely.

Finding good faculty members was difficult. Full-time faculty members were not an option, since hiring at Hopkins is based on research needs. Part-time adjunct faculty members are much less expensive to hire, but it is a challenge to find excellent instructors that have subject matter expertise at the level of Hopkins professors. Since the program's revenue is derived from course enrollments, it is especially important to meet or exceed students' expectations. Due to these considerations, we have been careful to hire experienced part-time lecturers with excellent teaching records from nearby university business schools. We pay higher salaries, provide more staff and teaching assistant support, and expect them to spend more time on campus interacting with students than part-time faculty members do at other universities.

The start-up of the program was a bootstrap operation. Seed money provided by an encouraging Associate Dean was used to pay salary for two adjunct lecturers. After the initial funding, the program could expect no more. Course enrollments from the initial course offerings had to pay for continuation of those courses, and provide profits to fund additional courses in later semesters. However, the program was able to grow at a moderate pace. By the end of the second year, the program had attracted the attention of alumni, who subsequently established endowments totaling \$2.1 million for the support of the program. The good fortune of the endowment funding allowed more rapid growth in course offerings and allowed the program to establish important non-revenue-generating learning experiences, such as a business plan competition. Without the endowment, the development of the program would have been much slower and more difficult. After gaining some financial stability and establishing a substantial number of foundation courses, advanced courses in entrepreneurship and special business topics were introduced. However, the financing of the program remains highly dependent on the parameters of the Engineering School's budget algorithm, which are modified, sometimes fairly drastically, every few years.

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## 4. Lessons and Advice

The following paragraphs give some of the lessons and advice we have gained in our experience while building the program at Hopkins. We do not make any particular claim of originality or uniqueness for these lessons, but offer them with the hope that some of them will be new and useful to others who are starting entrepreneurship education programs. The lessons and related comments are grouped into categories in the following subsections.

### 4.1 Financial Matters

*Beware of reliance on grant funding.* We specifically have not applied for grants until recently. Most grants are used to begin an activity that is not self-sustaining and must be cut back once the grant ends. Our approach is to apply for grants for experiments and enhancements in current programs, to help expand self-sustaining programs faster.

*Do not start an activity until it can be sustained indefinitely.* Cutting back an activity can result in considerable disappointment on the part of its participants and beneficiaries. The administration may then view the program as being in decline and be reluctant to continue providing funds.

*Work to become financially independent of the Dean.* When a Dean is interested in a program, he or she has a tendency to micro-manage it. On the other hand, when the Dean is disinterested, the program may be starved financially or prevented from taking advantage of opportunities. Financial independence, through endowment, for example, gives a program the opportunity to chart its own course.

*Make a profit for the Dean.* Deans almost always appreciate sources of money. Our program currently produces a profit of approximately \$1.6 million per year for the Engineering School, while its cost is only \$400,000 per year, of which one-third comes from endowment payout. Our deans have usually, but not always, recognized the benefits of supporting and expanding a worthwhile educational program that produces such a profit.

### 4.2 Campus Politics and Interactions

*Make sure the Dean knows that you are making a profit for the Dean.* Our program has developed under the leadership of three different Deans of Engineering, with a fourth anticipated in Fall 2003. Education of a new Dean is essential, and an occasional “refresher course” is sometimes necessary. We have not been as successful at this as we would like, but we are optimistic that a new Dean will look favorably upon the success of the program and support its continued development.

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*Give the Dean bragging rights.* Deans like to be able to report successes of their faculty, departments, centers, and programs. Be aware of possible awards and honors, and be sure to notify the Dean and the Communications Office of successes to publicize. Our program had two main “bragging rights” items in 2002: Our business process management lecturer, Josh Reiter, won a campus-wide award for excellence in teaching. Hopkins undergraduate teams won first and third prizes in the Greater Baltimore Technology Council’s first “Mosh Pit” business plan competition, in competition with teams of MBA students from other universities in the region.

*Invite the Deans to everything.* A way we let our Deans know what we’re doing is to invite them to all our events, social functions, and intersession classes. While they do not often attend, they occasionally surprise us! Both the Dean and Associate Dean for Academic Affairs stopped by our holiday lunch in December 2002 to greet our faculty and briefly converse with them. We believe the Deans appreciated being invited, and it certainly meant a lot to our lecturers that the Dean would come to express appreciation for their contribution. The more the Deans know about what is happening in the program, the more they can brag about it.

*Collaborate with other academic departments.* In the past year, our managerial accounting course has begun to have teams work with Biomedical Engineering Department (BME) design teams on business plans for medical devices invented by the BME students. Two of these teams will be presenting their plans during our January intersession course in front of entrepreneurs, business professionals, professors, and over 100 fellow students. The collaboration has been an extremely valuable experience for both sets of students, and we will expand this collaboration with the BME department in Spring 2003. Establishing such working relationships with other departments is a great idea for many reasons, and would have been beneficial for us to start earlier than we did. They help prove the value of the program to other faculty, which creates advocates for internal university funding of the program. They can also lead to joint grant proposals and publications on the interdisciplinary collaboration.

*Collaborate with the alumni relations and development office.* The fund-raising office already has relationships with the most successful and wealthiest alumni, which include a disproportionate number of entrepreneurs. Their contacts can provide speakers for courses and special events (and can eventually lead to major gifts to your program!). Our collaboration on the intersession “Invitation to Entrepreneurship” course has been mutually beneficial. The successful alumni feel honored by the invitation to speak, and the Alumni Relations and Development Office staff members have the opportunity to talk with them while they are visiting campus. The Alumni Relations and Development Office also funds an extremely popular feature of the intersession course, where each day a group of 5 to 8 students is chosen at random to have lunch at the Hopkins Club with the alumni entrepreneur speakers.

*Collaborate with the career development or placement office.* We enjoy a particularly good relationship with the Career Center. In our program’s most successful collaboration, we created the Wall Street Trip, which has resulted in a substantial increase in the number of investment

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banks that recruit on campus. (It is extremely difficult to get investment bank recruiters to come to a campus that does not have a business school!) The excellent business preparation that our program provides has increased the employment options for many Hopkins students, contributing substantially to the Career Center's success in its mission. In another mutually beneficial collaboration, students will get experience working with an actual client in our Spring 2003 Principles of Marketing course by developing a marketing plan for making Hopkins students aware of all the services that the Career Center provides.

*The University Administration is a good source of lecturers.* The university administration is an unexpected resource. People in the administration value education highly, and may want to teach. We discovered several that were teaching elsewhere, and hired them to teach for us. This gave us other advantages – interest and moral support, and aid in administrative matters. We have the Controller teaching financial accounting, the Director of Organizational Development teaching negotiation and conflict management, and have had Senior Treasury Associates teaching financial accounting, managerial accounting, corporate finance, and financial institutions and capital markets. The University President, who started a company before his presidency, has spoken in our intersession course.

*Expect resistance from liberal arts faculty members.* When our program first introduced courses, there was considerable faculty resistance on campus to offering any business courses at all. For example, it was claimed that accounting was a “skill,” such as typing or physical education, so should not be offered for college credit at all. The Dean of Arts and Sciences ruled that the accounting principles courses could not be counted toward the distribution requirement by Arts and Sciences majors. Since a change of dean and “improvements” in the course, our business courses are now used to satisfy the distribution requirement.

#### 4.3 Part-Time Lecturers

*Treat your lecturers well.* It is incredibly beneficial to treat your lecturers well. We provide relatively high salaries and, equally important, other benefits such as teaching assistants and staff support that they do not receive at other colleges. We pay for a TA (to work about 8 hours per week) for any class with an enrollment over 20. We have paid for our faculty to participate in outside activities such as professional seminars and computer software classes. We are also very generous in providing them with supplies, videos, and books desired for preparation for a class. These amenities may count more than salary in making people feel appreciated. Most of our lecturers eventually stop teaching at other universities and increase their teaching at Hopkins.

*Build a sense of community among your lecturers.* In many university settings, the part-time and adjunct faculty members are not part of a cohesive unit, since most of them have full-time careers and are not on campus every day. We have managed to create a community feeling among our faculty and our small staff with social activities such as dinners, holiday lunches and impromptu meetings and get-togethers. (Good food is always an important component.) Every December we have a holiday lunch at our Hopkins Faculty Club, which gives our lecturers a chance to socialize together, discuss course planning, grading, and just trade ideas. (We also give out gifts of appreciation at the lunch.) The faculty are known to show up at our office early for their

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evening classes to share ideas and stories about their classes and students, in what is jokingly called “happy hour.” The sense of community that our program has developed with the faculty plays a large role in creating faculty loyalty and enthusiasm, which in turn helps our program thrive.

*Teach part-time faculty how to navigate in your university system.* Although part-time faculty members are, by definition, “outsiders” in university life, we want them to become familiar with the academic policies and basic services available on campus. We encourage them to become knowledgeable about more than just matters directly involving their individual courses in isolation. Such knowledge will allow them to respond to students’ questions about subsequent courses, our business internships, the business plan competition, the program’s requirements, and how to declare the Entrepreneurship & Management Minor, as well as items outside of our program, such as the career center, advising offices, library, and bookstore.

*Look for and encourage self-reliance in lecturers.* Many of our part-time lecturers are entrepreneurial individuals who are relatively independent. They quickly learn the university policies and procedures that they are expected to follow. These lecturers develop contacts in the library for putting books on reserve or ordering books, learn who to call at the bookstore to check on their textbook order, and contact the undergraduate advising office directly regarding an accommodation for a student with special needs. However, some lecturers depend heavily on the staff for assistance in these matters. For such a lecturer, the staff often must make many telephone calls relaying information between the lecturer and a campus office, which is extremely time-consuming. With a faculty of 13 part-time lecturers, if only two or three are not self-reliant, their requests, interruptions, and errands can take more than half of a staff member’s time. (Surprisingly, it seems to be the lecturers with the fewest other employment responsibilities who place the most demands on the staff.) Our goal is to have our lecturers feel a strong sense of community within our program, but also achieve a considerable degree of self-reliance in their campus activities.

*Enthusiastic lecturers will recruit lecturers for you.* We have never needed to advertise for lecturers. Prospective lecturers have come to us through word of mouth from our current lecturers, who know good adjunct lecturers from their teaching at nearby universities or know well-suited individuals through their full-time employment. Nine of our thirteen current lecturers were recruited this way.

*Hire only lecturers with experience teaching undergraduates.* We have occasionally hired lecturers with no experience teaching undergraduate students, and were not particularly successful. In one case, the lecturer was simply a poor teacher, who could not establish a good structure and pace for the course. In another case, the person was an entrepreneur with no teaching experience at all. This lecturer transformed an upper level course into a seminar series, with an invited speaker at each class period, rather than a full 3-credit course. We offered a second chance the following semester and the offer was accepted, but then declined a few weeks before the semester, and we had to cancel the class after students were already registered. We learned another important lesson from this case described in the next item.

*Try to identify the true motives of potential instructors.* The entrepreneur in the previous item had a strong desire to be affiliated with Johns Hopkins University, and spent more time networking with the university administration and worrying about titles and compensation than teaching. From this experience, we learned to look for passionate teachers who do not do this work primarily for money and a title, but for the joy and rewards that come from reaching a few students and possibly making a huge difference in their lives. These are people who will have already started their teaching career and who enjoy and know what to expect from teaching at the university level. We are now more careful not to hire people who are experimenting with teaching undergraduates as a second career.

*Other colleges can be “farm teams” to train lecturers.* In two cases, when one of our lecturers stopped teaching at a nearby university, he or she suggested a replacement. After the replacements gained teaching experience there, we also hired them.

#### 4.4 Undergraduate Students

*Take care when setting up student-alumni contacts.* In the business plan competition, we now have students demonstrate interest by writing and submitting a draft business plan before matching them with mentors. Previously, we found that undergraduates are different than MBA students with work experience and may not realize the value of an opportunity for mentoring. In the first year of the competition many students did not take advantage of the opportunity to meet with their assigned mentors, which left their mentors disappointed. This reflected poorly on the program at a time when we were working hard to develop strong alumni relationships.

*Undergraduates can be excellent Teaching Assistants.* Since there is no business school at Hopkins, we also do not have graduate students in business available to serve as teaching assistants. We currently hire approximately 15 of our top undergraduate students each semester to serve as teaching assistants to our adjunct faculty. These students typically assist the faculty by preparing handouts and copying materials, grading and marking corrections and suggestions on homework papers, and assisting students at regularly scheduled office hours (which is especially important because the adjunct faculty are not available on campus most of the time). Our experience with these TAs has been generally very positive. The students are highly motivated and most are interested in business as a profession. With TA applications increasing each semester, we are able to be more selective in our choices.

*Be flexible, within limits.* We intentionally built extensive flexibility into our program, for example, by allowing students to bring any course to our attention for possible addition to the list of approved courses. However, as one might expect, entrepreneurial students regularly try to persuade us to make an exception or allow a special request. For an extreme example, one student asked to do an internship at a small company in Los Angeles while taking a full course load at Hopkins in Baltimore, and was extremely argumentative, even threatening, when we rejected the proposal. After a few “off-the-wall” requests, we realized the importance of setting

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clear boundaries when writing our requirements and policies. Flexibility with clear limits will allow each student to design a program to satisfy his or her interests and goals, as we wish, but will also protect our program's reputation and minimize case-by-case decision-making.

#### 4.5 Internships

*Make sure students want a learning experience, not just credit.* One area of concern is that some students see an internship as an easy way to get credits toward graduation. (This attitude may reflect the fact that there are few arranged internships at Hopkins, and the perception that most that exist are supervised very casually.) In order for our program to satisfy the needs of companies, we endeavor to explode that myth by making both the application and work requirements fully comparable with a typical 3-credit course. To this end, it has helped to develop good communication with other university offices, such as the Career Center and the undergraduate advising offices, to make sure they know our requirements and do not give the students incorrect or misleading information. Now we rarely get a request from an advisor to approve credit for an internship that a student completed six months before. They know we will not agree to do so.

*Require a substantial application.* We carefully developed a rigorous application process, in which a student must submit a resume, transcript, and a short essay describing their motivation and expectations for the internship. The application packet explains that only students whose grades are above average and have sufficient business course background will be accepted. These guidelines are intended to discourage students who are not yet prepared for a beneficial learning experience in an internship, and notify the student that approval of an internship is not automatic.

*Set an early deadline for internship applications.* We expect students to apply for internship experiences during the pre-registration period in the previous semester, and we have a deadline for completing all arrangements by the end of the first week of classes. A common problem is that we are approached by students in the first half of the semester about registering for an internship. Most of these students have decided to withdraw from a course, realize that it is too late to enter another class, and say that they "need the credits." As much as possible, we want to insure that the internship is "pre-meditated" and desired for the educational experience. Enforcing an early deadline makes this message clear to students.

*Be tough when accepting students for internships.* Our application process makes it relatively easy to screen out students who may be struggling academically or who lack sufficient business course background or business-related work experience. However, every semester we get a number of applicants who are on the borderline or are below our minimum requirements. It is often difficult to get the student to accept that his/her application has not been accepted, as they apparently consider our "No" decision to be our opening position in a negotiation and often continue to petition for a change. While this is time-consuming and unpleasant for both the staff and students, it is important for the program to uphold high standards, and for a potential entrepreneur to learn to handle negative decisions. We have learned from this experience to formulate in advance a carefully worded explanation to give the student if he/she comes demanding explanations and firmly maintain our decision.

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*Keep a close eye on the students.* We have also learned from hard experience that no matter how earnest a student may be the first week of the semester about how hard he/she will work and how much knowledge will be gained, etc., every student inevitably loses some degree of interest and motivation as the semester wears on. We require our students to keep us updated on their work via weekly emails, but this often requires a reminder from the staff. They must also write an essay at the end of the internship summarizing their work, learning, and perspectives on the experience. The staff must again prompt them (sometimes repeatedly) for the paper. This whole monitoring process insures the high quality of the internship for the student, university, and company. However, for 8 to 12 students over the course of a semester or summer the effort can be burdensome for the staff and faculty advisor, which limits the number of internships we are able to sponsor.

*Insist that students treat an internship as seriously as any other course.* In some extreme cases, a student loses interest in the internship entirely. In the case of a regular course, the student would need to either withdraw from the course or continue to meet the full requirements to pass the course. However, in the case of an internship, some students feel that they can reduce their hours and be awarded a smaller number of credits toward graduation. For maintenance of good relationships with our company sponsors, it is our policy to not permit this (except in cases of emergency or major illness) and turn in a grade of Incomplete, which is automatically converted (by university policy) to a Fail if the internship commitment is not completed by the end of the fourth week of the next term. Another issue on this topic is discussed in the next item.

*Internships should receive letter grades.* A Johns Hopkins University policy requires that internships be graded on a Pass/Fail basis. With some students, this undermines our effort to get students to devote comparable effort to the internship as to a course with the same number of credits toward graduation. At the end of the semester “crunch,” students may spend more time on their graded courses and less on the internship. In an extreme case, a student may do what they believe is “just enough” for a Pass, which may lead to a disappointed supervisor at their company, and may lead to a difficult Pass/Fail decision for us. While assigning grades for internships raises several issues, we believe it would be an improvement over the Pass/Fail approach.

*Cultivate relationships with the sponsoring businesses.* It is very important to develop relationships with the companies and people who hire students for internships. One obvious benefit of having a good relationship is that when we know what the employer wants, and thus can provide a student who does excellent work for the company, the company will want more Hopkins interns in the future. As one interesting example, the marketing director of a local sports team requires an intern to be a fan of the team rather than the student’s hometown team due to concerns about their confidential marketing and advertising contracts getting into the hands of the competition. A second benefit is that we can work with the employer to improve the educational experience of our internship students. Once a relationship is established, we can be more

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comfortable discussing details about desired working hours, types of tasks assigned, the extent of mentoring and supervision, information sources and computer software used, etc. For example, when we learned from the assistant to a Baltimore City judge that their business law interns do much filing and mundane paperwork with little educational value (but occasionally get to sit in on a news-making trial), we revised the arrangements, reducing the number of credits.

## 5. Challenges and Opportunities

The W. P. Carey Program is now entering a third phase of its development. In the first phase, the focus was almost entirely on establishing a basic undergraduate business education at Hopkins. In the second phase, since the endowment fund was established, advanced entrepreneurship courses and non-academic experiential learning activities were introduced.

Now, the program is in the process of hiring a full-time non-tenure-track faculty member. We are becoming involved in the university's technology research and commercialization efforts, outreach to other university departments and to faculty-founded and alumni-founded companies, and participation in conferences and publications on entrepreneurship. (1) Hopkins is restructuring its intellectual property and technology commercialization efforts.<sup>4</sup> Prof. Wierman has begun a three-year term as the initial chairman of the Engineering School's new Intellectual Property Committee, which must develop procedures, assess technological feasibility and commercial opportunities of inventions, and make recommendations regarding intellectual property protection for the inventions and discoveries of its faculty, staff, and students. (2) We have begun a partnership with the Biomedical Engineering Department in which teams of entrepreneurship students collaborate with teams in the biomedical engineering design project course. In one case, an NCIIA grant was received to further develop a resulting invention. (3) We are participating in the ASEE Entrepreneurship section, the Roundtable on Engineering Entrepreneurship Education (REEE), and the N2TEC university technology commercialization partnership, and plan to become involved with other similar organizations. (4) We have been involved in submitting grant proposals to NCIIA and the Kaufmann Foundation. Two proposals have been funded recently. (5) We are helping to form a Mid-Atlantic region group to share information about entrepreneurship education. These are initial steps in an expansion of the program beyond its initial focus on undergraduate entrepreneurship education.

During the next three to five years, the W.P. Carey Program expects to continue rapid growth in enrollments, but at a decreasing rate, with enrollment leveling off at approximately twice the current level. When that occurs, one-half of all Hopkins undergraduates will complete a course from the program each year. In the past couple years, after building a solid foundation of fundamental courses, the program has begun to add more specialized advanced courses. While we now have several, we plan to focus the enrichment of our curriculum on developing additional courses.

In order to expand our advanced entrepreneurship course offerings, we face the challenge of identifying or developing exceptional teachers with the expertise in the relevant special topics. We have found it relatively rare for entrepreneurs, venture capitalists, etc., to have teaching experience, and have had some difficulties when we have experimented with inexperienced

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individuals as lecturers for courses, even when their expertise in the specialized subject is excellent. Since we have relied on attracting popular experienced lecturers so far, teacher training of subject matter experts will be a major challenge for us.

In the 2002-3 academic year we are taking advantage of an opportunity to expand our collaboration with the Biomedical Engineering Department. Due to the importance of design project teams in the ABET accreditation criteria, contributing to the education of engineering students via this route will help embed the entrepreneurship program into the core mission of the Engineering School. An endorsement from the Biomedical Engineering Department, which is top-ranked nationally, will give us the credibility we need to get started with the other departments.

The hiring of a new full-time lecturer will give us the opportunity to expand our internship program beyond large established companies. For students from our advanced entrepreneurship courses, we plan to develop entrepreneurship internships with start-up companies, small enterprises, and venture capital firms, so students can gain valuable experience and knowledge inside such firms. We plan to contact such companies through organizations such as the Greater Baltimore Technology Council and the Mid-Atlantic Venture Association and develop continuing relationships.

Meeting these challenges and pursuing these opportunities will both stretch and expand the capabilities of the W.P. Carey Program. Successful outcomes will make the program a much more valuable contributor to Hopkins education, and will establish it as a contributor to the research and development effort. This will secure a more sustainable future for the program.

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<sup>1</sup> “Hopkins students re-engineer careers” and “Havens for the entrepreneurial-minded,” Baltimore Business Journal, February 7-13, 1997.

<sup>2</sup> “Johns Hopkins begins new business minor for engineers,” Quick’s Professional Journal, The Engineering Society of Baltimore, Inc., Vol. 3, No. 9, September 1996.

<sup>3</sup> “Hopkins, UMBC team wins Greater Baltimore Technology Council business plan competition,” Baltimore Business Journal, May 6, 2002, (<http://baltimore.bizjournals.com/baltimore/stories/2002/05/06/daily13.html>)

<sup>4</sup> “Hopkins strengthens effort to earn from faculty discoveries,” Baltimore Sun, January 9, 2003.

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MARYBETH CAMERER received a Bachelor’s degree in English from the University of Delaware. For the past three years, she has been the sole staff member for the W. P. Carey Program. She played a significant role in the management of the Program while Prof. Wierman was on sabbatical for two years. Besides administration, she also advises students, arranges internships, and co-plans the business plan competition and intersession course.