

Engineering/Social Sciences Teaming in a Faculty-Led Study Abroad Program for Undergraduates

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ABSTRACT

Lafayette College offers a faculty-led study abroad experience for all Engineering majors. In coming years, roughly twenty-five percent of the College's Engineering graduates will have spent a semester abroad. The current program is in partnership with Jacobs University Bremen in Germany and operates under a contractual arrangement. The College is now preparing for a fifth consecutive year with Lafayette Engineers living and studying for a full semester at a truly international university. This paper describes the evolution of the original Jacobs/Lafayette Study Abroad Program and its current ambition to combine BS Engineering majors with Bachelor of Arts majors within a study abroad context. The group will be led by two faculty members – one from Engineering and one from the Social Sciences. The paper details the educational format for the semester abroad, the role of the faculty leaders, the myriad arrangements for setting up the program, the targeted program outcomes and objectives, and finally those issues, when not considered, that could undermine success. This paper is useful to engineering educators and administrators who offer (or are contemplating offering) a semester-long study-abroad experience for their undergraduate majors. It is especially useful to those Engineering programs seeking further integration of Engineering, Liberal Arts, and study abroad.

INTRODUCTION

Lafayette College is a private 'Liberal Arts College with Engineering'. It is located in Easton, Pennsylvania, and enrolls approximately 2,400 undergraduates. One-fourth of Lafayette students are engineering majors; one-half are Humanities or Social Science majors, and one-fourth are majoring in the Natural Sciences.

Beginning in 1990, Lafayette College began offering a faculty-led semester abroad for all Engineering majors. In itself, this is not remarkable; however, it is at least noteworthy that students can take advantage of this curricular feature and still remain in a curriculum designed to complete degree requirements in four years. When speaking of all Lafayette Engineering majors, this includes accredited BS programs in Chemical Engineering, Civil

Engineering, Electrical and Computer Engineering, Mechanical Engineering, and an AB program in Engineering Studies.

Lafayette's Study Abroad program for engineers includes five core requirements.

- Partner institution must have accredited academic programs, including Engineering
- Partner institution must be on a semester system, closely matching American semester schedules
- The study abroad must be a semester-long experience
- The study abroad program must be faculty-led
- The study abroad experience must be in a non-Anglophone nation.

This set of core requirements, despite being relatively unrestricted, nonetheless becomes quite difficult to satisfy. The challenge is to identify an institution with strong academic programs, with instruction in English in a country with a different native language. In addition, faculty supervisors must be willing and capable to teach and mentor students for a full semester and in a foreign setting. A successful marriage of a study abroad program and host institution would need to meet all five requirements. This paper will describe the evolution of Lafayette College's semester-long study abroad program, its principal objectives, and the critical issues associated with mounting a successful Study Abroad experience for undergraduates.

BACKGROUND

The Study Abroad program for engineering students at Lafayette College began as a modest endeavor in the early 1990's. It was, ironically, a program that did not differentiate between engineers and students majoring in other fields. This program was based at Vesalius College in Brussels, Belgium. This College is the English-speaking arm of the Free University of Brussels and Boston University maintains a presence there. The study abroad program there grew to more than thirty students at its peak; and these students, over a fifteen year period until 2006, evolved into a predominantly engineering group. As this program catered more and more to the needs of Lafayette's engineering students, programs of study at Vesalius College shifted toward academic disciplines outside engineering. Increasingly, Lafayette College faculty needed to teach breadth of engineering course offerings for the students who were abroad. This led Lafayette College to explore other sites for engineers to spend a semester abroad. This search, it should be stressed, is critically important to establishing a successful and continuing study abroad program. By this time at Lafayette—2004—the study abroad program for engineers at Lafayette had grown to the point that roughly 25% of each graduating class of BS engineering majors studied abroad for a semester. At the same time, the global nature of the engineering enterprise (and other professional pursuits) becomes more and more important for new graduates. It was somewhat serendipitous that in 1999 the International University Bremen received initial accreditation by the city of Bremen, Germany. This university occupies a former military base outside the city of Bremen, perhaps a manifestation of the “swords into plowshares” prophecy. The International University Bremen, founded in collaboration with the City-State of Bremen, the University of Bremen, and Rice University in Houston, Texas, later became Jacobs

University Bremen after accepting a major gift from the Jacobs Foundation ^[1]. A site visit during 2003 convinced Lafayette College officials that Bremen, Germany, would be a suitable partner in the array of Study Abroad options for our students. The Bremen, Germany site has especially strong science and engineering programs, an American-style semester system with instruction in English, and a residential campus. The site visit, as it turns out, was a significant factor in the decision to establish the Bremen study abroad program. An agreement in principle to begin a study abroad partnership is then a first step. An important second step is the crafting of a contractual agreement between institutions. The basic contract can be as brief as several pages; however, many of the operational and financial details must be worked out (and documented) as the program develops. An effective working relationship is crucial to getting conflicts resolved, and some conflicts are inevitable. The following summary data shows the growth of Lafayette's Bremen Study Abroad program over the first five years of the partnership.

<u>Academic Year</u>	<u>Students</u>
2004-05	12*
2005-06	6*
2006-07	21
2007-08	34
2008-09	42 (estimated)

* A parallel program in Brussels was being phased out during 2004-06.

OBJECTIVES

The Lafayette College Off-Campus Study Mission Statement ^[2] includes the following language:

“[The] College recognizes that we live in an increasingly complex and interrelated global environment, and connecting the classroom to the world outside our walls is at the core of the College's mission. Off-campus study combines academic rigor with experiential learning through immersion in an international or domestically significant setting.”

The objectives of the Study Abroad program in Germany is embodied by an addendum to this Mission Statement:

“Engaging in an unfamiliar cultural milieu often is truly transformational. Off Campus Study participants are encouraged to expand their comfort zones, encounter new perspectives, and examine their own cultural viewpoints. Students return to campus with a greater appreciation of global issues, enriching their understanding of their off-campus curricula while stimulating and deepening conversation within the college community.”

Because Jacobs University Bremen has a student population of approximately 1,100 representing approximately 90 countries, the campus atmosphere is international and multicultural in an ideal sense. Only 25% of the students are native to Germany.

EVOLUTION

While Jacobs University Bremen has evolved rapidly over the past decade, the Lafayette College Study Abroad program there has also undergone a significant evolution. Most

importantly, it has become Lafayette's principal international site for engineers studying abroad, and the only site used by the College for its semester-long faculty-led program abroad for engineers. Students may choose from several other sites (e.g. Dresden, Germany, or Madrid, Spain), but these are not faculty-led programs. As noted earlier, the student groups have increased in number from six in the initial group to an anticipated 40-plus in the Spring 2009 group.

Where do we go from here? The immediate emphasis is directed toward increasing the participation of Lafayette's Natural Sciences, Social Sciences, and Humanities majors. Just as the Bremen Study Abroad experience is about the students' appreciation of the diverse nature of the global community, the study abroad group should benefit by a diverse mix of academic backgrounds and interests. Recent groups have tended to be somewhat monolithic with participants being from different engineering fields, but nonetheless engineering majors. A concerted effort is underway to remove the "brand" on this program as an "engineering program," with the initial recruiting emphasis being directed toward majors in the social sciences. As part of this effort, there will be a second faculty member with the group for the Spring 2009 program, in particular, a faculty member from Lafayette's Social Sciences Division. This teaming arrangement for a faculty-led program abroad enhances the students' experience by incorporating a Social Sciences/Humanities perspective as part of the faculty leadership during the semester. Secondly, it serves to attract student participation from Bachelor of Arts majors at Lafayette. A significant part of the teaming arrangement is the joint development of a new course to be co-taught by the faculty leaders while abroad. Lafayette College is supporting this development and the course, Engineering and Law as Learned Professions: Fiduciary Service in Pursuit of Public Purpose, will be offered to students during their study abroad semester in Bremen. It is anticipated that this course will serve Lafayette students as a component of the Engineering Science (ES) and the Government and Law (GOV) stems, as well as contribute to Lafayette's Values and Science and Technology (VaST) curriculum. This course will serve to demonstrate to students the interdisciplinarity of scholarly endeavors, and serve to promote interdisciplinarity within the college curriculum. In addition, a course in "Law and Justice in Comparative Context" will be available by virtue of the presence of a professor from the Social Sciences.

EDUCATIONAL FORMAT

Students participating in the semester-long study abroad program in Bremen must first be admitted to Jacobs University Bremen as full-time students. They are expected to complete a full semester of study toward their degree requirements. Courses are cross-correlated between the two schools and Jacobs University Bremen course credits and course grades are transferred to Lafayette upon completion of course requirements. All participating students must enroll in a required course as part of their semester abroad workload: German Politics and Culture, taught by Jacobs University faculty. Students enroll in three or four other courses, with one or two of these taught by Lafayette faculty, and one or two from Jacobs University faculty. The normal course load while abroad is four or five courses. Provisions are made for student excursions to be a part of the course

on German Politics and Culture. These excursions are considered to be a critical component of the students' experience, and there may be three to five trips with overnight stays being a part of each excursion. Students, for example, visit the Berlin Wall and the headquarters of the European Union in Brussels. Unfortunately, exchange rates tend to dictate the number of excursions that are possible during one semester. Students, in addition to formal coursework, are encouraged to join student clubs, participate in intramural sports, and be active in other co-curricular endeavors. Students also are quick to arrange their own travel to places of interest.

CRITICAL ISSUES

There are a number of issues that arise, even in an environment that fosters a thriving Study Abroad program. The "good news" is that recruitment of students (at least the number of students) for study abroad programs is not an issue. Today's undergraduates tend to recognize the importance of gaining international experience, and the influence that globalization will have on their careers. Unfortunately, there is the "bad news" associated with many study abroad programs. Here are some that Lafayette College is dealing with, and it is likely that others are looking for solutions as well.

- The difficulties associated with setting up a study abroad program in countries other than Western European nations: the list of five core requirements mentioned earlier are especially difficult to meet for more exotic, and usually more culturally diverse countries;
- The currency exchange rates with European Union countries is especially unfavorable for American students: unfortunately this is not something that can be influenced by college policies;
- Faculty support in mounting study abroad semesters is often not available through administrative offices: this operational support issue is in addition to the problem of financial support that, in turn, is related to the previous point; recently, however, Lafayette College has appointed a full-time Director of Study Abroad;
- Faculty reward systems are often unrelated to the efforts/success of leading a study abroad program: this issue is especially relevant to junior faculty on tenure track where the participation in a successful study abroad is discounted relative to other academic achievements; even though responsibilities extend beyond the classroom;
- Safety and security during a period of study abroad must be assured: many faculty avoid mounting what could be highly rewarding study abroad programs because adequate measures for security or emergency responses are considered to be adequate at best;
- A faculty member's ability or opportunity to sustain critical research programs while abroad can be seriously affected: when continuation of research studies is critically dependent on local or even regional resources, the disruption of a research agenda is quite likely;
- When a faculty-led semester-long program is to be supervised by a faculty member with school-age children, it can become a hardship to either have the family along, or to leave the family behind;

- How to best prepare students for their study abroad experience: at least one course in German language is encourage, and several meetings to discuss what they should be prepared for in a foreign environment.

SUMMARY

This paper has addressed the evolution of a successful study abroad program. A major new emphasis of the program is to diversify the student group from engineering majors exclusively to a more balanced population representing the four academic divisions at Lafayette College: Engineering, Social Sciences, Natural Sciences, and Humanities. To that end, the teaming arrangement of two faculty members—one from Electrical and Computer Engineering, and one from Government and Law—will be field tested during the Spring 2009 semester. This faculty team will not only lead the group while abroad, but will also co-teach a course in Engineering and Law as Learned Professions. It is anticipated that three advantages will accrue from this arrangement:

- (i) exposure of students not only to a diverse and unfamiliar academic/cultural environment, but to diverse academic viewpoints of faculty leaders,
- (ii) students' opportunity for formal study of founding principles of engineering and law, in a classroom environment with instruction and discussions led by professors from both disciplines,
- (iii) faculty leaders' opportunity to work in a collaborative way while being away from the home institution.

REFERENCES

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