

## **Trip to NUI Galway for development of a Biology student exchange program – Linda Lowe-Krentz**

Report on trip including exchange program progress to date:

### **Brief overview of the trip:**

My goals for the trip were to develop a student exchange program that will serve students in the Biological Sciences areas at Lehigh and the Microbiology (and possibly the Biochemistry program) at NIU Galway. I left Bethlehem, PA – October 2, 2012 and arrived in Galway, Ireland – October 3, 2012. During the course of my visit to NUI Galway I learned my way around the campus, had meetings with six administrators and 15 faculty members from three colleges to discuss various aspects of this plan. In addition, I had the opportunity to give a seminar for faculty, administrators and graduate students and had several working meetings with Vincent O’Flaherty my host and head of the School of Microbiology, to plan the exchange details. Between meetings I was able to use time for writing during which the program plan was constructed, notes were recorded, and research into specific program documents was conducted. I completed work in Ireland on October 12, 2012 with a draft plan that still requires some work in terms of inserting final course names for the NUI Galway courses that are being renamed this and rewritten (in some cases) this year, getting final agreements from the Lehigh Physics department and the Biological Sciences department for specific course transfers and getting a final approved plan for courses that the Galway students would take at Lehigh. In addition, some of the discussions suggested possibilities for research connections, graduate student exchange options and interest in developing a similar plan for exchanges that would link the Civil and Environmental Engineering programs at NUI Galway and Lehigh.

### **Summary of the Exchange Plan as of November 29, 2012:**

Lehigh Students’ fall courses

1. Physics (NUI number in transition) for Science majors at NUI (taken concurrently with Calculus I at NUI). The evaluation by the Physics Department so far suggests students would receive PHY 11 (3 cr only) and PHY 12 (1 cr). There is some specific content missing from the NUI entire year sequence that could be taken as 1 cr of PHY 9 at Lehigh concurrently with PHY 13, 22 in the spring term at Lehigh to get a complete match of Lehigh physics courses.
2. Biochemistry (NUI numbers in transition) 10 ECTS credits in 2 courses (5 cr each) used as the First semester of Biochemistry at NUI. The course pair is taken after a year of Biology that includes an introduction to Cellular and Molecular Biology and a semester long Organic Chemistry course. The tentative new titles for the two courses are “Molecular Cell Biology” and “Protein Structure and Function.” The content of the first course includes generally molecules in cells and DNA, RNA, and protein synthesis. The second course looks at protein structure and function and techniques for studying proteins including a significant laboratory component. Some details in terms of which biomolecules will be discussed in the first vs. second course is not yet clear to me. It seems that this pair could be accepted as Biochemistry I (BIOS 371 3 cr and 1 cr of BIOS 399 – laboratory).
3. Elective courses in Biology (several options) and/or in Humanities and Social Sciences.

NUI Galway Students’ probable fall courses

1. BIOS 115/116 Biology Core II at Lehigh which covers Genetics. Students from NUI will have reasonable background to take this course pair and resources at Lehigh to cover a small number of exchange students seem adequate.

2. BIOS 371 and BIOS 377 Biochemistry I and laboratory at Lehigh. Students from NUI take similar material at NUI Galway (see above) and these courses would have appropriate space for a small number of exchange students.
3. Elective course in Biology chosen based in individual students abilities and likely majors at NUI.

**Meetings accomplished during the Ireland visit:**

Oct 2. – Left Bethlehem, PA.

Oct 3. – Arrived in Galway around noon. Met with administrative assistant who helped with arrangements and hosting - Therese Mahony; and toured the campus.

Oct 4. – Preview and planning visit with host Vincent O’Flaherty, Head of the school of Microbiology. Met with Anna Cunningham, Office of International Affairs, manages Study Abroad programs. Met with Colin Brown, Director of the Ryan Institute for Environmental, Energy, and Marine Research. Gave a seminar in Microbiology for faculty, staff, and administrators who might be interested in the Exchange program – Title: Bioscience at Lehigh and Cardiovascular Research at the Cellular Level. Second meeting with Vincent O’Flaherty to discuss the next meeting. Met with Brian Hughes, Dean of International Affairs at NUI Galway along (Vincent O’Flaherty was also at the meeting).

Oct 5. – Met with Gavin Collins, faculty member in Microbiology for research and program discussions. Identified other people with whom I should meet beyond those already on my schedule. Met with Michael Cartey, Head of the school of Biochemistry. Detailed discussion of the major courses that might be available to Lehigh students. Met with Andrew Flaus, Director of their Biotechnology undergraduate program that includes student placement in off-campus internships.

Oct. 6-7 (weekend). Toured the city of Galway and surrounding countryside to get a better sense of where students would be living and visiting.

Oct. 8 – Met with Gerry Loftus, Dean of the College of Medicine, Nursing, and Health Sciences. These are all undergraduate programs at NUI and other European universities. We discussed courses that cross their disciplinary boundaries and the alternate educational strategies for students aiming at a career in medicine. Met with Tom Sherry, Dean of the College of Science whose buy-in is critical for the exchange program to fly. Met with Noel Lowndes, Director of the Center for Chromosome Biology and faculty member in Biochemistry. Discussed mostly faculty and graduate student exchanges and research program opportunities.

Oct 9. – Met with Eoghan Clifford, faculty member in Civil and Environmental Engineering who hosts some of our summer students and works in collaboration with faculty in Microbiology. He is interested in expanding any exchange program we develop into their college (specifically their program). I have started discussions with Richard Weisman and Gerry Lennon. Met with Conor O’Byrne, Vice Dean of Internationalization in the College of Science to discuss general science programs and overall study abroad issues. Update and planning meeting with Vincent O’Flaherty. Met with Heinz-Peter Nasheuer, Head of the School of Natural Science to discuss possibilities for graduate student exchanges.

Oct 10. – Met with Tom Wheatley, School of Physiology, College of Medicine. He provided course specifics for courses that should be available to science undergraduates including those studying abroad. This discussion brought the earlier meeting with Gerry Loftus to a useful level for student options. Met with Abhay Pandit, a Biomaterials faculty member whose research program is off campus. He hosts

international exchange students at all levels. He is a high profile research individual who is a good contact for us. He provided some ideas for funding sources for graduate student exchanges. Met with Grace McCormack, Head of the School of Zoology regarding organismal biology courses. Met with Mark Lang, Head of the School of Physics for course transfer discussions.

Oct 11. Met with John Kelly, faculty member in Pharmacology and Therapeutics (Medical College). We discussed courses that would be available as electives to Lehigh students (and are taken as electives by NUI science students as well as students in various medical programs). These include Toxicology, Pharmacology, Endocrinology, and Neurobiology. Spent time looking at NUI course details to try and match courses including some in Chemistry. Started putting together a draft for the exchange program. Had an interesting research discussion meeting with Aoife Boyd. She is studying a bacterial infection that induces a response that involves the stress system we study in shear stressed endothelial cells.

Oct 12. Met with Niall Geraghty, Head of the School of Chemistry to talk about possible transfer courses in Chemistry. Sometimes they allow students to take different sections of different courses to facilitate transfer back to home universities. Spent most of the day working on the program paper, and then meeting with Vincent O'Flaherty to polish it and get NUI input. We are now waiting for specific course rearrangements happening in NUI to finalize the document.

**Attached materials and next steps:**

The draft exchange program document is appended. As of late November 2012, we are waiting for final NUI course revision documents. Because the course revisions have caused some program changes at NUI, we are also waiting to finalize the courses NUI students would take at Lehigh until their work is completed this spring. Course documents listed as the appendix for the Exchange program document are, therefore, not yet finalized.