

Brochure: NC State University Summer Program in Poland

NC State University announces a NSF-funded summer undergraduate student research program at Adam Mickiewicz University (AMU) and the Institute of Bioorganic Chemistry of the Polish National Academy of Sciences (IBCh) in Poznań, Poland. The program entitled “RNA Structures that Promote Encapsidation” provides an educational and undergraduate research experience. The research projects involve problems of general interest for RNA structure and function. The theme of the research is the study of structures of oligonucleotides that are involved in viral coat protein assembly using methods that include modified fluorescent oligonucleotides. The PI and co-PI have recently embarked on program of research that involves the development of novel plant viral nanotechnology. We have collaborated with the Polish research groups of Prof. Bohdan Skalski (AMU) and Prof. Ryszard Adamiak (IBCh) for the past six years. This collaboration has included joint publications, patents, reciprocal visits to laboratories, seminars collaborators universities, short courses at AMU visits by students during the past 5 years. The short course will discuss RNA research and the methods to be used in the summer program. Faculty and staff from AMU and IBCh will give tutorials on the techniques to be used. The PI and collaborators will provide lectures on RNA structure, function and biological aspects relevant to the research. The students will be given a tour of university facilities and then they will work at laboratories in the Chemistry Department, Physics Department (Morasco Campus of AMU) or at IBCh in Poznań.

Travel and an in-country travel reimbursement will be paid. This includes housing and meals as well as excursions. The students will receive an introduction to Poland, the research topic and the methods in a short course held at AMU in Poznań. The director Prof. Franzen will personally travel to Poland and provide an orientation that includes essential Polish language, transportation, and shopping.

Research topics include application of methods including RNA structure probing, NMR and UV-vis, circular dichroism, fluorescence, time-correlated single photon counting, NMR and gel electrophoresis. At the mid-point in the project a symposium will be held in Cracow where the students and faculty will present seminars. This will give the students an opportunity to present their findings for an audience of scientists and to learn from scientists at other universities in Poland. At the conclusion of the summer project a mini-conference is proposed that will include participants, faculty or their representatives, the PI and both Polish and US students. The undergraduate students will present short talks on their accomplishments and then we will hold workshops to determine what conclusions can be reached. Finally, discussion of strategies for publication will be conducted as part of the conference. An evaluation of the summer research will be conducted at the mini-conference.

This project supports a collaborative effort to determine the structure/function relations in RNA in viral packaging and novel RNA functions in cell biology. The educational impact is large since students learn about the political and economic realities in a country that undergone an enormous transformation in the past 17 years since the fall of the iron curtain. The current situation in Poland provides unique possibilities for starting new collaborative projects of the type proposed here. Most importantly, the students will benefit from the enormous expertise that currently exists in Poland in the area of nucleic acids chemistry.

Please send application materials (CV, unofficial transcript, 1 letter of recommendation) to:

Dr. Stefan Franzen, Email: Stefan.Franzen@ncsu.edu, Phone: (919)-515-8915



The Ratusz (city hall) in Poznań Old Market Square.