What off-campus undergraduate research programs would you recommend for me?

Research Experiences for Undergraduates (REU)
The National Science Foundation supports a large number of REU sites that offer undergraduates participation in research. Andrews students have typically been well received in these programs and greatly benefited from experiencing the real-world milieu of research. While sharpening research skills, it gives students a better idea of how well they fit into the international physics community and whether to pursue research as a career. You may find your own interests represented in the current 2002 listing of physics REU’s offered.

DOE Energy Research Undergraduate Laboratory Fellowship Program (ERULF)
The U.S. Department of Energy sponsors a number of full-time, semester-long research opportunities at national laboratory facilities. These are internships which last either 10 or 16 weeks and involve not only research but also lectures, tours, and group activities. A research paper or PowerPoint presentation of the student’s scientific results is required. To get an idea of what might be available for you in the future, you may want to look through the 2002 listing for fall and spring semester as well as summer opportunities and check out the online application and respective due dates. You may want to apply now for the next Fall, Spring, or Summer semester.

Argonne Student Research Participation Programs
Argonne National Laboratories offer an extensive program of undergraduate research opportunities. You will definitely want to search through their Catalog of Research Participation Projects for areas that might interest you. Argonne is located within an hour and a half of our campus and a number of Andrews graduates are now employed in the laboratory. Our majors have been highly valued at Argonne. To apply you will need to fill out their online application form.

Will I have to support myself during the time I do research?
When participating in research with a faculty member, all research expenses will be covered and either an hourly rate or a lump sum stipend will be paid for your involvement in the project. Travel expenses to and from off-campus sites are normally also covered when necessitated by the project. Depending on the specific financial arrangements for the stipend, lodging may also be covered.

Undergraduate Student Research Scholarships
The Office of Scholarly Research offers awards of $750 per semester for research conducted in collaboration with an Andrews professor. The purpose of these scholarships is to free a student from other lines of work in support of his educational expenses, while facilitating the research efforts of university professors. A minimum of 90 hours is expected for each award of $750. Additional awards are available for summer research, depending on the extent of the project, making it possible for students engaged seriously in research to be awarded up to $3000 in a calendar year. If you are interested in collaborating with one of the physics professors in his/her research for a research scholarship, contact Gary Burdick.

What are the possibilities of doing research by myself?
Because of the complexity of most research projects, it is not usually practical for students to conduct their own research. However, faculty members are generally available for consulting, and there are some limited resources in support of a student’s independent research.

Grants-in-Aid of Research
Sigma Xi, an international research honor society, offers $100 to $1000 in their Grants-in-Aid of Research program to support student research upon the recommendation of two faculty members. All the physics faculty are members of Sigma Xi and students who engage significantly in research are eligible for nomination as Associate Members.

Will I get to publish the results of my research?
A number of our past students have published their research under their own names in refereed journals, particularly when they undertake projects in collaboration with an Andrews professor. You will find a number of recent publications involving Andrews undergraduate research here. When research is conducted in the context of a large international collaboration, that may not be possible. However, there other venues such as the Journal of Undergraduate Research and internal collaboration technical notes for a student to publish their findings.

Will research publications help me in my career path?
For sure! It is unusual for students to get professional research experience as undergraduates. Therefore, any recognized publications which document your research experience will highlight your strengths in your resume when you search for employment or apply for graduate school or professional programs.

Will I have to give presentations of my results?
One of the most valuable aspects of studying physics at Andrews is the opportunity, encouragement, and help you will get in developing your presentation skills. Our alumni report that this gave them a definite edge once they entered graduate school and a professional research environment. You do not get this kind of preparation in most large research universities. In our department, you start by presenting material from your courses like Advanced Laboratory I and II in the weekly departmental colloquium Physics on Rye (POR) with transparency overheads or PowerPoint presentations. You get experience explaining your work and fielding questions in a non-threatening but exacting audience. If you plan to graduate with Honors, you take Research Pro-Seminar (HONS398) which includes not only topics in research foundations but also in public speaking and presentation. Satisfactory completion of this course includes an interdisciplinary talk detailing your results. We also encourage and arrange for you to present your results at Friday sessions of the annual Argonne Symposium for Undergraduates in Science, Engineering, and Mathematics and help you write up an appropriate abstract.

Will I get academic credit for doing research?
When substantive academic material is a part of your research experience off campus in an internship program, you may petition the physics faculty for independent study credit. Petitions for credit have to be accompanied by a written outline of the academic material you covered in the line of your research duties, any written reports or presentations you gave during your tenure, a 20-minute presentation to the faculty, and a brief written evaluation of your work from your research supervisor. It has been typical for students to petition 4 hours of credit for summer research, but the number of credit hours are entirely determined by the specifics of each case.