Why study physics?

- **Physics is the most fundamental of the sciences.** Physics is concerned with the most basic building blocks of everything, from quarks to quasars. The study of physics is the attempt to discover the pieces making up the universe and how they interact with each other. It could be said that all the other sciences are based on the study on physics.

- **It can make your dreams materialize.** Whether you are the hands-on type who just loves the fun experiments and demonstrations, a serious computer whiz who thrives when surrounded with the very latest hardware, a dreamer of dreams who wants to sketch out reality in exotic mathematical forms, a visionary who aspires to impact society, or the more practical type who wants to see an effective product on the market, it can be confidently said that physics will be an excellent preparation for you.

- **It’s the “Swiss Army Knife” degree.** Some say it is the “Liberal Arts Degree of Technology.” Physics majors acquire many valuable skills and mental habits that work well in practically any profession. These include problem solving, interpersonal skills, technical writing, management skills, advanced computer skills, experience with special equipment and procedures, business principles, and statistical concepts. Physics majors can go on to pursue careers in medicine, law, economics, business, and engineering of all stripes (mechanical, electrical, environmental, and computer engineering).

- **It maximizes your options.** A physics-based career path will give you great opportunities for mental stimulation, creativity, and fascination. While the unique strengths of our discipline can transform you into an “explicit physicist” in academia or in industry, it is less widely known how effectively it can pave the way for excellence in other areas, making you a “hidden physicist”. Physics majors have gone on to great jobs like fighter pilot, volcano tour guide, and video game designer as well as prime minister, stock analyst, and entrepreneur.

- **It’s fun, interesting and exciting.** It gives you a deeper appreciation for the world around you. According to a recent American Institute of Physics’ (AIP) report, the majority of students major in physics for sheer enjoyment. Studying physics is the difference between looking at a rainbow and saying “Look at all the pretty colors!”, and understanding the interactions between photons and electrons that occur when light strikes spherical water droplets in the sky that you perceive as a multicolored arc in the sky. Physics models lasers, superconductors, black holes, quantum phenomena, cosmology, and relativity. It also addresses questions like “Why is the sky blue, why are sunsets red, and why does ice float?” Physicists are always trying to understand the world around them – in macroscopic and microscopic realms and in short and long time spans. They invent or acquire cool toys to help them.

What makes studying physics at Andrews so special?

- **We’re small.** You won’t get lost in the shuffle. You’ll have ample opportunities to interact directly with all five PhD professors, each with an active research agenda. We offer full BS degrees in physics and in biophysics with all the benefits of a small, tutorial environment. We pride ourselves in our collaborative, mentoring atmosphere.

- **We’re family.** We develop the whole person. You’ll have unique opportunities to develop your communication skills through presentations and networking. Academic forums and faculty home environments will help you develop your spiritual priorities and religious world views. And of course, you will make lifelong friendships in “226”, the special study area set aside for our majors. After you graduate, you’ll have a lifetime email home with us, too, and keep track of your student and teachers friends through the departmental newsletter Wavelength.

- **We work hard together.** We believe in students working side-by-side with teachers. Majors typically assist in up-to-date teaching laboratories to supplement your income and experience. They also take advantage of the individual research they can do with the professors. What better way to prepare for the physics workplace?

- **We reward excellence.** Most majors qualify for departmental scholarships. These make great additions to your resume. Our students typically excel and we like to recognize that.

What kind of track record do Andrews Physics graduates have?

Our majors regularly do research on campus and at world-class universities and national laboratories while they are students here and often publish their findings as undergrads. Some of the off-campus opportunities include Argonne National Lab, Kitt Peak National Observatory, Lawrence Livermore National Laboratory (LLNL), National Center for Atmospheric Research, Harvard-Smithsonian Center for Astrophysics and the Deutsches Elektronen-Synchrotron (DESY). With this background, our graduates are well received Berkeley, MIT, Yale, Penn State, Columbia University, and Stanford. Andrews Physics alumni have demonstrated that we do a great job of preparing students for their next step. We like to think their successful careers after graduate school has something to do with the foundation they built here with us.

How can I tell if I’m the physics type?

There are lots of humorous jokes about what constitutes a “physics type”. Most of these accentuate the public’s stereotypical images of physicists, while others tap into elements of the discipline that only insiders would recognize. But physics is not just equations and physics types are real people with a full range of personal characteristics. They may be single-minded, reclusive “geeks” or laid-back, social “jocks”; diligent, quiet, and bookish “blonds” or free-wheeling, extroverted, and gregarious “socialites”. Our majors often appreciate and engage in musical activities and include physical activities in the gym or outdoors in their busy study schedules. What determines whether physics is for you is whether you are intensely interested in discovering

- how things work at the fundamental level (rather than at the application level alone)
- how mathematics can be used creatively and rigorously to quantitatively explain phenomena (rather than relying on vague and anecdotal generalities)
- how a single idea can explain a variety of phenomena (rather than singular events)
- how ideas can be tested reproducibly with experiment (rather than relying on personal or philosophical considerations alone)
What about women in physics?
In many cases, women are represented at levels below 5%. The physics community as a whole has been keenly aware of this as a problem and a great deal of effort has been made to increase the levels to female participation. However Andrews Physics has been a particularly friendly place for women for the last 20 years, with a female professor on the physics staff and a greater than average representation of women among its majors.

What if I have further questions?
Email your questions to physics@andrews.edu or call our toll free number 866.471.3430.