The College Core Curriculum, College of Arts and Science

Science is important, and everyone can do it.

Many people (e.g., university students) think they don’t like science, or that they’re not good at science, or that science is only for “geeks.” Many people also feel that science is irrelevant to their lives. Nothing could be further from the truth. In fact, people who do not “like” science “do” science all the time.

Remember when you got up this morning? You gathered and processed a large amount of information (considered whether you were hungry, thirsty, in need of caffeine; remembered what you wanted to do today; checked the time). You then calculated when you should leave your apartment in order to stop for coffee and still make it to class. Next you tested this calculation by leaving five minutes later than you should. If you had to run to make it to class, you confirmed that your original calculation was good or bad, which might affect when you leave the next time. During the process of observing, calculating, and testing, you were using scientific tools.

We constantly make decisions based on gathered information. Some decisions are simple. Others are more complicated and can dramatically affect your life, or the lives of everyone around you. For example:

Who should I vote for?
Is the globe really warming?
Is nuclear energy safe?
Am I in favor of stem cell research? Gun control? Abortion?

All these decisions require processing an ever-increasing body of information. However, most of us make them based on few, and in some cases, no facts. This needs to change.

Core science courses are designed to encourage an appreciation for science as a way of knowing. They are based on the belief that information, not rhetoric, should be the most important factor that influences our political and life decisions. They teach students to distinguish between real data and spin, strong inference and anecdote, fact and belief. As students, you will learn how we know what we know, and will be encouraged to challenge even the most entrenched dogmas. You will also be expected to participate in experiments, which are fundamental to the scientific process. No matter what career path you choose, the critical thinking skills learned from science will enrich your life.

The world of science is intriguing and beautiful.

Science stands next to the arts. At the heart of science is a quest to understand who we humans are, and how we interact with each other and the universe. What is life? Why are we here? What is the origin of the universe? Why do I look like my parents? What makes different life forms different? These questions (and thousands of others) have fascinated humans since the beginning of recorded time.

Core science courses foster a sense of wonder about the natural world. They present topics that are inherently interesting and provide students with a conceptual understanding of the ingenious technical achievements that have deepened mankind’s understanding of physics, chemistry, biology, earth science, and ourselves.
*Science is a collective human endeavor.*

Scientists are individuals whose creativity, passion, and charisma rival those of the most celebrated artists, writers, and political figures. Although often depicted as solitary figures working on tedious projects, each scientist is part of an evolving global network of people who push forward the boundaries of human knowledge.

By learning about scientists, one learns what makes science special. It is not that science is somehow separated from human idiosyncrasy or fallibility. Instead, what makes science special is that, *despite* human idiosyncrasy and fallibility, the collective human desire to understand our universe endures. Science has a universal and powerful standard for what constitutes knowledge, a standard based on independent observation and reproducibility. This stringent standard gives us confidence in our current understanding of the world and is a humbling reminder of how much remains unknown.