

Patterning the World: Connecting Mathematics and Science

Spring 2014

blogs.evergreen.edu/patterning

Krishna Chowdary
chowdark@evergreen.edu

Neal Nelson
nealn@evergreen.edu

This introductory program integrates the study of mathematics and physics around a theme of *patterns*. We approach the study of patterns from two complementary points of view: the *discovery* of patterns through hands-on work in lab and the *generation* of patterns through mathematical explorations. We will study mathematics as a language of patterns that unifies these viewpoints. As students discover and generate patterns in lab and workshop, we will develop and identify mathematical structures that describe and help make sense of those patterns. Students who successfully complete this program will be prepared for further introductory science programs such as Computer Science Foundations, Introduction to Natural Science, or Models of Motion.

Weekly schedule (subject to minor adjustments)

Monday	Tuesday	Wednesday		Thursday
8:30 – 10:00 Lecture Lecture Hall 4	8:30 – 12:00 Math Lab CAL: Lab 2, 1 st floor	8:30 – 10:00 Physics Lab Lab 1 2046	8:30 – 10:00 Workshop Sem 2 A2105	9:00 – 12:00 Workshop Sem 2 A2105
10:00 – 12:00 Physics Lab Lab 1 2046	10:00 – 12:00 Workshop Sem 2 A2105	10:30 – 12:00 Physics Lab Lab 1 2046	10:30 – 12:00 Workshop Sem 2 A2105	
1:00 – 3:00 Physics Lab Lab 1 2046	1:00 – 3:00 Workshop Sem 2 A2105			

Textbooks

- *Precalculus: An Investigation of Functions*, available at <http://www.opentextbookstore.com/precalc/>
- *College Physics*, available at <http://openstaxcollege.org/textbooks/college-physics>

Common Questions

This program is for 12 credits. Can I take a course in addition to the program? 12 credits are sufficient for you to be considered a full-time student, so you don't need to take more credits. However, there may be a 4 credit course you are interested in taking. We deliberately designed the program at 12 credits to allow for that possibility. Our program was also designed to enable students who know that they will need to spend a significant amount of time to make up for gaps in their math background or study skills to have that time. If you think that you are such a student, we encourage you to concentrate on just this program.

I've taken pre-calculus/general chemistry/algebra-based physics. Is this the right program for me? If you've done well in pre-calculus (or equivalent) or a college-level science course with significant mathematics content (like general chemistry, algebra-based physics, or similar), then this is probably not the right program for you. If you've taken a science course or program and found that you struggled with the mathematics required to understand the science content, you will be able to develop a solid mathematical foundation in this program.

Are there any math prerequisites for this program? There are no math prerequisites other than what is expected for all college students – completion of high school algebra. If your algebra is rusty or if you were weak in algebra during your previous classes, then this program is probably right for you. If you are not able to do basic algebra at all, then you should probably be taking a basic pre-college algebra course elsewhere.