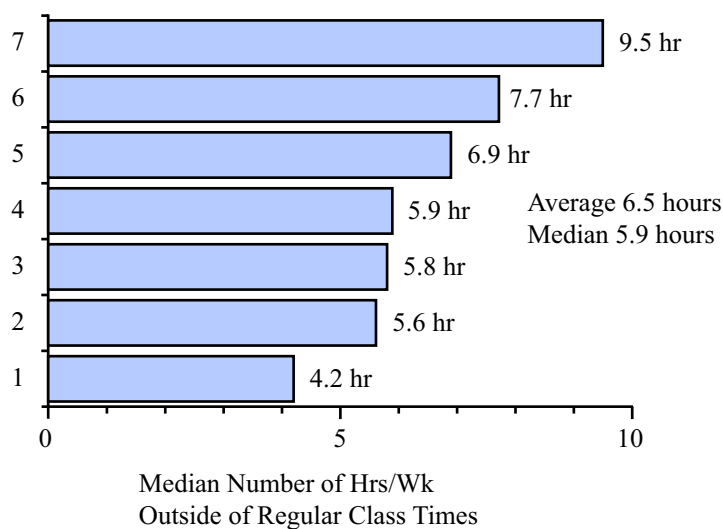


### TIME COMMITMENT: 6 HR/WK + 6 HR/WK = 12 HR/WK

Understanding the science of physics and learning how to investigate natural phenomena on your own can be exhilarating, but it also takes energy, patience, and time. How much time are you expected to put into the algebra-based introductory courses at Westminster? What do we expect? How does that compare with the average study time at other colleges?

A number of colleges with academic reputations comparable to that of Westminster recommend that students plan on working three hours out-of-class for every hour spent in class. If Physics 151-152 were taught in the more traditional format of three lectures each week, we would be requiring an average of nine additional hours outside of the lecture setting. Three of these hours would be spent in a weekly laboratory session and the other six would be spent working informally, either independently or with classmates, to complete assigned work. This adds up to a total of twelve hours per week in course related activities. The workshop format of this course reallocates the six hours of formal instruction time into three 2-hour long sessions held in an environment where discussions, observations, and experiments can occur. However, *we are still expecting the average student to spend at least six hours outside of class each week*. There is, of course, a tremendous variation in the amount of time that different individuals need to put into the course to be successful. The time you need to spend will depend on a number of factors, such as how thoroughly you would like to learn the material, your natural ability, and the background you already have in mathematics, physics, equipment use, and writing. Although the amount of time you have to spend each week will vary, steady work from week to week will stave off the need to spend an unreasonable amount of time in any given week.

Many students who have taken physics at Westminster have pointed out that Physics 151 and 152 courses typically require more work than their other courses. You might be interested in the results of a survey of physics students at seven other colleges and universities (Dickinson College, the University of Oregon, Lynchburg College, Rutgers at Newark, the University of Nebraska, New Mexico State University, and Arizona State University). The average amount of work done at Westminster is comparable to the averages that were reported by other colleges. This is shown below.



**Figure 1:** Bar Graph of the median number of hours spend in out-of-class study for introductory physics courses at seven colleges and universities.

Physics courses at Westminster College may require more work than many other courses you may have taken in high school or at Westminster, but the workload is not out-of-line with that required in physics at other colleges and universities. Learning how to analyze data, describe natural phenomena mathematically, and use new apparatus and computer tools involve high order thinking skills that only come with practice. Former students who pursue careers or undertake graduate study in a number of fields of endeavor find the increase in thinking ability and the background they have obtained to be extremely valuable. Although you will be expected to put considerable effort into the Physics 151 and 152 courses, we hope you will enjoy the activities and take a real pride in your growing ability to learn about the wonders of nature by conducting your own investigations using modern computers and scientific apparatus.