

# Memorandum

Mathematics Department  
Whitman College

**DATE:** August 5, 2009  
**TO:** Math Seniors

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**Subject:** The Written Examination in Mathematics

The written exam in mathematics for the 2009-2010 academic year will be given in late September or early October; the exact date will be announced at the beginning of the fall semester. The exam covers topics from the calculus sequence and linear algebra. On the exam, we will be looking for evidence that you have a basic understanding of the key concepts in these two subject areas. It is expected that your understanding of calculus has deepened since the time that you first took calculus; for example, theorems and abstract ideas should be clearer to you by now. It is up to you to determine what to study. At this point in your mathematics career you should have some insight into which ideas are central and which are peripheral.

As an illustration, we do not expect that you have the antiderivative of  $\sec^3(x)$  memorized or even that you remember the special tricks to compute it. However, you should certainly know integration by parts and integration by partial fractions as well as the basic integration formulas for common functions. You should also be able to state and explain some of the key theorems in calculus such as the Mean Value Theorem and both parts of the Fundamental Theorem of Calculus. There will be no questions on differential equations. In linear algebra, you should know about Gaussian elimination, linear transformations, eigenvalues, determinants, and some of the terminology associated with vector spaces.

You can see a sample exam on the web at the department website (first link under “Student Resources”).

The exam that you take will not be this exam with minor changes and may not even cover exactly the same topics; it is just a sample of what to expect. I suggest that you begin to review the material early and study a little at a time. There is no substitute for actually doing problems. If you have specific questions about the exam, please contact your major advisor. Have a good summer.