

**Differential Equations**  
**(15-MATH-2073-004)**  
**Spring Semester, 2014**

**Class Room and Class Times:** Room 520 of Swift Hall  
Monday, Wednesday, and Friday at 12:20-1:15 p.m.  
except Monday, January 20 (Dr. Martin Luther King, Jr. Day)  
and Spring Break, March 17-21. From Monday, January 6 through Friday, April 18, 2014  
and the Final Examination on Tuesday, April 22 at 12:00-2:00 p.m. in Room 520 of Swift Hall

**Teacher:** Roger Chalkley

**Office:** Room 4504, French Hall West

**Office Hours:** 12:20 a.m.-1:15 p.m. on Tuesdays and Thursdays; 1:25-2:30 p.m. on Fridays

**Phone:** (513) 556-4074

**Textbook:** **Elementary Differential Equations and Boundary-Value Problems,**  
10<sup>th</sup> Edition, by William E. Boyce and Richard C. DiPrima, John Wiley, 2012.

**Syllabus:** See the next page for selected topics from Chapters 1 through 5

**Testing and Grading Policy:** There will be two 55-minute examinations, four quizzes, and a 2-hour final examination. Each 55-minute exam will be graded on a basis of 100 points and will count as 1/5 of your final grade. Each quiz will be graded on a basis of 25 points and count as 1/20 of your grade. The final examination will count as 2/5 of your grade.

**Quiz 1, Friday, January 17**

**Examination 1, Friday, January 31, 12:20-1:15 p.m.**

**Quiz 2, Friday, February 14**

**Quiz 3, Friday, February 28**

**Examination 2, Friday, March 14, 12:20-1:15 p.m.**

**Quiz 4 - Friday, April 4**

**Final Exam, Tuesday April 22, Tuesday, 12:00-2:00 p.m. in 520 Swift Hall**

Partial credit on tests is awarded only for work that is mostly correct except for one or two minor errors. You will not be given partial credit for attempting to solve a problem by an incorrect method. You must show your work on the tests. A correct answer without the accompanying correct work will receive no credit; an incorrect final answer accompanied by mostly correct work will receive substantial credit. Also, arrange the work in a logical manner and write legibly. The grade is based on the work shown, not what was intended but not made clear.

**Grade of W:** March 14 (a Friday) is the last day to withdraw from the class and receive a grade of W.

The Mathematics Learning Center is located in French Hall West, Room 2133. It is a free, walk-in, mathematics tutoring center for all University of Cincinnati students. The tutoring hours may be found at [http://www.artsci.uc.edu/departments/math/learning\\_center.html](http://www.artsci.uc.edu/departments/math/learning_center.html)

## Differential Equations (15-MATH-2073-004)

<b>Section Description</b>	<b>Suggested Homework Problems</b>
1.3 Terminology	pages 24-25, Numbers 1–20
2.1 Linear first-order differential equations	page 40, Numbers 1, 3, 5, 7, 13-20
2.2 Separable first order differential equations and homogeneous (nonlinear) first-order ones	page 48, Numbers 1-9, 11, 13 pages 50-51, Numbers 31, 33, 35, 37
2.3 Word Problems	page 60, Numbers 1–4
2.4 Comparisons	page 76, Numbers 1,, 3, 5, 7, 9, 11
2.6 Exact differential equations (ignore integrating factors for other than linear first-order equations)	page 101, 1-15
Problems on pages 133-134. This is an excellent selection of problems to practice for the first examination (to recognize whether a given first-order differential equation is linear, or separable, or homogeneous, or exact, or something else).	
3.1 Second-order homogeneous linear equations having constant coefficients	page 144, Odd Numbers 1–17, 21, 23
3.2 Solutions, linear independence, and the Wronskian	pages 155–156, Numbers 1, 5, 9, 13, 17, 21, 25, 29, 33
3.3 Complex Roots	pages 164, Numbers 1–6, 7, 9, 11, 13, 15, 17, 19
3.4 Repeated Roots	page 172-173, Odd Numbers 1–13
3.5 Nonhomogeneous – method of undetermined coefficients	page 184, Odd Numbers 1–17
3.6 Nonhomogeneous – variation of parameters	page 190, Numbers odd 1–15
4.1 General theory – nth order linear equations	pages 226–227, Odd Numbers 1–17
4.2 Homogeneous with constant coefficients	pages 233–234, Odd Numbers 1–23
4.3 Nonhomogeneous ones – undetermined Coefficients	pages 239, Numbers 1–8 and 13–18
4.4 Nonhomogeneous ones – variation of parameters	page 244, Number 1 and 7
5.1 Review of power series	page 253, Odd Numbers 1–27
5.2 Series solutions, Part I	pages 263-264, Odd Numbers 1–13