Teaching Portfolio

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Contents

1   Teaching Positions

- Teaching Assistant, Washington University, 2012-2015

- Professor of Mathematics, Illinois Central College, 1998-2011

- Teaching Assistant, Oklahoma State University, 1996-1998

- Mathematics Instructor, Spoon River College, 1995

- Math Tutor, Mapleton Christian School, 1995

- Teaching Assistant, Northwestern University, 1992-1994

2   List of Courses

All listed courses I have taught at the college level as sole instructor in a traditional class-room format. Additionally, I have taught Business Calculus and College Algebra online,

and College Algebra, Calculus 1, and Calculus 2 in a distance learning format. Some of the online and DL sections were offered as dual credit classes for high school students.

Courses Taught

- Calculus 1

- Calculus 2

- Calculus 3/Vector Calculus

- Differential Equations

- Calculus for Business and Social Science

- Linear Algebra

- Precalculus/Foundations of Calculus

- Elementary Statistics

- Discrete Math

- Finite Math

- College Algebra

- Intermediate Algebra

- Beginning Algebra

Courses TA'd

- Fourier Analysis

- Point Set Topology

- Geometry of Manifolds

- Algebraic Topology

- Differential Geometry

- Differential Equations

3 STUDENT EVALUATIONS

NUMERICAL DATA The tables on the following pages show the mean scores from the Washington University student evaluations of my classes. (No numerical student evaluations were compiled for the classes I taught at Illinois Central College.)

Students used a scale with 1 being the lowest and 7 the highest possible rating, or similarly 1 being strongly disagree and 7 being strongly agree for certain questions. The first table concerns courses I taught independently and the second table is from courses where I worked as a teaching assistant.

Note that the Topology data is entirely from two (apparently satisfied) students. As a teaching assistant I also graded for Fourier Analysis, Differential Geometry, Geometry of Manifolds, and Algebraic Topology, in which I had no contact with the students and the evaluations (which are entirely voluntary and completed outside of class) were not submitted except for three students who selected 'strongly agree' in answer to the question of whether the grading was fair, one comment of 'Careful gradings and comments in the homework', and two students stating that they were unaware there was a TA for the course.

Washington University Instructor	Foundations of Calculus	Calculus
OVERALL EVALUATION	(Scale of 1 to 7)	
Overall rating of course	5.8	5.3
Overall rating of instructor's teaching	4.8	5.5
How much did you learn in this course?	4.8	5.7
INSTRUCTION	(Scale of 1 to 7)	
The course lived up to its description	5.5	6.7
Assigned work complemented lectures	5.9	6.5
Class time was well used	4.5	6.7
Topics were well organized	5.5	6.8
The instructor was well prepared for class	6.5	6.3
INTERACTION WITH STUDENTS	(Scale of 1 to 7)	

Expectations were clearly explained	5.8	6.2
Grading procedures were fair	6.5	6.7
Instructor was concerned for students	5.8	6.3
Instructor was available for consultation outside of class	6.3	5.5
Instructor maintained positive environment in class	6.8	6.5

Washington University TA	Differential Equations	Differential Equations	Topology
OVERALL EVALUATION	(Scale of 1 to 7)		
Overall rating of section	6.0	5.8	7.0
Overall rating of teaching	6.1	5.7	7.0
INSTRUCTION	(Scale of 1 to 7)		
Material was presented clearly	6.1	5.9	7.0
Questions were answered clearly and concisely	6.0	5.7	7.0
Material was presented at an appropriate pace	5.8	5.8	7.0
The TA was well prepared for class	6.0	5.9	7.0
Class time was well used	5.8	5.8	7.0
The TA effectively led class	5.9	5.3	7.0
Topics were effectively related to the lecture	6.1	5.9	7.0

The TA communicated at a level appropriate for the class	5.9	5.9	7.0
INTERACTION WITH STUDENTS	(Scale of 1 to 7)		
Expectations were clearly explained	5.9	5.5	7.0
Grading procedures were fair	5.8	5.9	7.0
TA was concerned for students	5.9	5.8	7.0
TA was available for consultation outside of class	5.7	6.1	7.0
TA maintained positive environment in class	5.8	6.1	7.0

4 SAMPLE SYLLABI

The following pages are a sampling of syllabi from classes I have taught, including a variety of classes and settings.

College Algebra Syllabus

MATH 115AC-COX

Fall 2001

Important Information:	
Instructor: Chris Cox **Office**: 321D **Phone**: 694-8804	**Class Time**: TTh 11:00-12:15 **Classroom**: 323B **Email**: ccox@icc.cc.il.us
Office Hours: Monday 11-12, Tuesday 9:40-10:40, Wednesday 11-1, Thursday 9-10 and by appointment **Text**: *College Algebra*, Stewart, Redlin, and Watson, Third Edition. **Prerequisites**: MATH 108 or the appropriate college placement test score.	

Important Dates:	
Thursday, September 6	EXAM 1
Thursday, September 27	EXAM 2
Thursday, October 11	EXAM 3
Friday, October 12	Midterm (College Closed)
Tuesday, October 30	EXAM 4
Friday, November 9	Last day to withdraw
Tuesday, November 20	Exam 5
November 21-25	THANKSGIVING BREAK
Tuesday, December 11, 12-1:50	FINAL EXAM

How your grade is determined:		
Hour Exams	$5 \times 50 = 250$	450-500: A 400-449: B 350-399: C 300-349: D 0-299: F
Quizzes	50	
Assignments	50	
Group Projects	50	
Final Exam	100	
TOTAL	500	

More detailed information:

Quizzes: Plan on a short quiz *every* day, either the first five minutes or last five minutes of class. Homework problems from the text will not be collected; however, most of the quiz problems will be similar to the homework problems. If you keep up with the homework you will do well on quizzes. There will be no makeup quizzes, though some will be dropped.
Group Projects: Throughout the semester you will be given group assignments to complete in groups of *three to five people*. Only *one* neatly completed solution should be turned in for each group.
Assignments: There will be several longer assignments over the semester, including two graphing calculator assignments. These will be given at least one week before the due date. Penalties will apply to late homework.
Attendance: Regular attendance is very important and excessive unexcused absences will affect your grade adversely. **No makeup quizzes will be given!** However, if you have a legitimate excuse for missing a class, you should notify me beforehand. You are responsible for finding out what you missed. If you miss an assignment, you should get it from me the next class. You are still responsible for turning it in on the due date. The number of quizzes that will be dropped in computing your final grade will be determined by your attendance as follows:

Number of Unexcused Absences	**Number of Dropped Quizzes**
0	4
1	2
2	1
3 or more	0

My mailbox: If you need to turn in something and miss class, you can drop it off in my mailbox in the MSE office, 320B. (This is a better method than slipping it under my door.)
Calculators: It is recommended that you have access to a graphing calculator. There will be graphing calculator assignments and in class demonstrations using a TI-86 or TI-89.
Academic Honesty: You are expected to do your own work on all exams and quizzes. The penalty for cheating will be a minimum of failure of the exam or quiz, with the possibility of failure of the course or even dismissal from the college. Refer to page 23 of the student handbook. For homework assignments, you may work with other members of the class or tutors at the math lab; however, the final write up should be your own.
Reaching me: I can be reached outside of class during my office hours at 321D. Email is an excellent way to reach me if you have a quick question. You can also call my office; if I'm not in you can always leave a message.

Discrete Math Syllabus
MATH 122P-COX
Spring 2002

Important Information:	
Instructor: Chris Cox **Office**: 321D **Phone**: 694-8804	**Class Time**: M 6-8:45pm **Classroom**: 338A **Email**: ccox@icc.cc.il.us
Office Hours: Monday 9-11, Tuesday 10:50-11:50, Wednesday 9-10, Thursday 10:50-11:50 and by appointment **Text**: *Discrete Math*, Washburn, Marlowe, and Ryan. **Prerequisites**: MATH 108 or the appropriate college placement test score.	

Important Dates:	
January 21	NO CLASS (college closed)
February 4	EXAM 1
March 4	EXAM 2
March 9-March 17	Spring Break
April 12	Last day to Withdraw
April 8	EXAM 3
April 29	EXAM 4
Monday, May 13, 6-7:50	FINAL EXAM

How your grade is determined:		
Hour Exams	$4\times50=200$	450-500: A 400-449: B 350-399: C 300-349: D 0-299: F
Quizzes	50	
Projects	50	
Problems & Participation	50	
Paper	50	
Final Exam	100	
TOTAL	500	

More detailed information:
Quizzes: Plan on a short quiz every day except for exam days. Quiz topics may be announced ahead of time. If you keep up with the homework you will do well on quizzes. There will be no makeup quizzes, but you will get one free drop.
Problems & Participation: Over the course of the semester you will be given a few more difficult problems to try to solve. You are not expected to solve all or even most of these. In some cases, it may even be impossible to completely solve, but the (first) best solution will be given credit. The class participation component of your grade will also be based on regular attendance and preparation.
Group Projects: Each class you are expected to complete a group project related to the day's topics. In general, you should be able to complete these in class.
Attendance: Regular attendance is very important and excessive unexcused absences will affect your grade adversely. **No makeup quizzes or exams will be given!** However, if you have a legitimate excuse for missing a class, you should notify me promptly. You are responsible for finding out what you missed. *Note well: Missing one class means you miss a week!*
My mailbox: If you need to turn in something and miss class, you can drop it off in my mailbox in the MSE office, 320B. (This is a better method than slipping it under my door.)
Calculators: It is recommended that you have access to a graphing calculator. There will be graphing calculator assignments and in class demonstrations using a TI-86 or TI-89.
Academic Honesty: You are expected to do your own work on all exams and quizzes. The penalty for cheating will be a minimum of failure of the exam or quiz, with the possibility of failure of the course or even dismissal from the college. Refer to page 23 of the student handbook.
Reaching me: I can be reached outside of class during my office hours at 321D. Email is an excellent way to reach me if you have a quick question. You can also call my office; if I'm not in you can always leave a message.

Mathematical Enrichment Paper
Math 122P-Cox
Spring 2002

OVERVIEW	This component of the course will consist of an expository paper related to a person or idea mentioned in class or in the text. Some of the topics involve deep mathematical ideas beyond the scope of the course. Accordingly, you should not attempt to explain the details but rather to give an overview of the history and significance of the problem. It won't hurt to use your text as a starting point in your research; however, depending on your topic it may no help either. Your paper should be between two and four pages long (typed, double spaced) and should include a bibliography listing at least five sources. Topics will be selected from the list below with only one person per topic, decided on a first-come, first-served basis. (If you can make a strong case I will consider a relevant topic not listed.) You should determine a topic by February 4.

TIMELINE	February 4: Topic selection	March 24: Outline and introductory paragraph due	February 18: Working bibliography	April 15: Final paper (and taxes) due

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EVALUATION	Topic selection	5 points
	Bibliography	5 points
	Outline and introduction	5 points
	Neatness, grammar, and spelling	10 points
	Format	5 points
	Content	20 points
	TOTAL:	**50 points**

Suggested Topics

1. The Godel Incompleteness Theorem
2. Lewis Carroll's contributions to symbolic logic and literature
3. The Fibonacci Sequence
4. Turing Machines
5. Alonzo Church and Church's Thesis
6. Noam Chomsky, Linguistics, and Logic
7. Map Coloring Problems
8. The Traveling Salesman Problem
9. P, N P, and N P-Complete Problems
10. Encryption and Prime Numbers
11. Leonhard Euler and the Konigsburg Bridge Problem
12. Bertrand Russell and Alfred North Whitehead's *Principia Mathematica*
13. George Boole and Boolean Algebra
14. Chargaff's Rules and DNA Sequences
15. Williams Rowan Hamilton and Hamiltonian Graphs
16. John von Neumann, Logic and Computers
17. Georg Cantor and Countable Sets
18. Blaise Pascal
19. Aristotle's Logical Writings
20. Irrational Numbers and the Pythagoreans
21. Frank Gray and the Standard Grey Code
22. John H. Conway, Sequences, and Tongue Tricks
23. Newton, DeMoivre, and de Montmort on Games of Chance
24. Boolean Functions and Logic Gates
25. Frankie Lucas and Lucas Numbers

Discrete Math—paper sign up sheet:

Name	Topic
Steve Tisdale	Encryption and Prime Numbers
Kevin McDonald	Fibonacci Sequence
Shawn Temple	Boolean Functions and Logic Gates
Trent Delinski	Newton and Games of Chance
Eddie Schneider	George Boole
Suba Ramani	Aristotles Logical Writings
Scot Lange	Chargroff's Rules and DNA Sequences
Dan Nolan	John H. Conway
Dustin Sanders	Logic & Computers
Anthony Martin	Lucas and Lucas Numbers
Brent Giosta	Turing Machines
Brian Hays	Irrational Numbers and the Pythagoreans
Jon Berry	The Godel Incompleteness Theorem
Bryan Isbell	Alonzo Church
Dan Foster	Frank Grey and Grey Code
Chris Bayer	Map Coloring Problems
Arnisha Collins	Georg Cantor and Countable Sets

Calculus & Analytic Geometry Syllabus

MATH 222-COX

Fall 2005

Important Information:	
Instructor: Chris Cox **Office**: 321D **Phone**: 694-8804	**Time**: MTWThF 12-12:50 **Classroom**: 216A **Email**: ccox@icc.edu

Office Hours: M 9-10, Tu 10-10:50, W 9-10, Th 10-10:50, F 11-11:50
Text: *Calculus*, James Stewart, Fifth Edition.
Prerequisites: MATH 165 with a grade of C or better.

Important Dates:	
Tuesday, August 30	EXAM 1
Monday, September 5	Labor Day (No Class)
Thursday, September 15	EXAM 2
Monday, October 3	EXAM 3
Friday, October 14	No Class (midterm)
Tuesday, October 25	EXAM 4
Monday, November 14	EXAM 5
Friday, December 2	EXAM 6
Monday, December 12, 12:00-1:50	FINAL EXAM

How your grade is determined:				
Hour Exams	$6\times100=600$	60%	**900-1000: A**	
Quizzes and Assignments	200	20%	**800-899: B** 700-799: C	
Final Exam	200	20%	600-699: D	
TOTAL	1000	100%	0-599: F	

More detailed information:

Exams: The six scheduled exams will occur on the announced dates. All exams will be closed book, closed notes, except as announced. Calculators may be excluded from all or part of the exams.

Quizzes: You quiz score will be determined by daily quizzes. The primary type will be short quizzes given at the beginning or end of class to test the skills used on the most recent homework exercises. At other times the "quizzes" will be longer projects completed together as a class, possibly due the following class period.

Attendance policy: Regular attendance is very important. If you miss a class, it is your responsibility to find out what you missed. If possible, let me know ahead of time.

Exams: *No make-up exams will be given after the scheduled date. If you are forced to miss an exam contact the instructor as soon as possible and submit an absence form (see course website) within one week. Decisions will be made on a case by case basis.*

Quizzes: *Missed quizzes can be made up during office hours before the next class period. Three lowest quizzes will be dropped.*

Course website: The course website will be available through blackboard and will provide information and supplements to the course.

Calculators: A graphing calculator is required for this course. TI models 83, 84, 86, or 89 will work.

Academic Honesty: You are expected to do your own work on all exams and quizzes. The penalty for cheating will be a minimum of failure of the exam, with the possibility of failure of the course or even dismissal from the college, as mentioned in the student handbook.

Reaching me: I can be reached outside of class during my office hours at 321D. Email (ccox@icc.edu) is an excellent way to reach me is you have a quick question. You can also call my office; if I'm not in you can always leave a message.

General Education Statistics Syllabus

MATH 111-COX

Spring 2005

IMPORTANT INFORMATION:	
Instructor: Chris Cox	**Time**: MWF 11–11:50
Office: 321D	**Classroom**: 230A
Phone: 694-8804	**Email**: ccox@icc.edu

Office Hours: Monday 10–10:50, 5–5:50, Tuesday 9–10, Wednesday 9–10 (MathLab), 5–5:50, Thursday 9–10 and by appointment

Text: Johnson, Just the Essentials, Duxbury Press publishing (3rd edition).

Prerequisites: Two years of high school algebra or Math 105 and 108.

IMPORTANT DATES:

Tuesday, January 26	EXAM 1
Wednesday, February 23	EXAM 2
Friday, March 11	EXAM 3
March 12–20	Spring Break (No Classes)
Friday, March 25	College Closed
Wednesday, March 30	No Classes (Faculty Dev. Day)
Friday, April 8	EXAM 4
Thursday, April 14	Last Day to Withdraw
Monday, April 19	EXAM 5
Friday, May 13, 10:00–11:50	FINAL EXAM

HOW YOUR GRADE IS DETERMINED:

Exams	450	45%	**900–1000: A**
Quizzes	200	20%	**800–899: B**
Projects	150	15%	700–799: C
Final Exam	200	20%	600–699: D
TOTAL	1000	100%	0–599: F

MORE DETAILED INFORMATION:

Exams: Dates are tentative, stay posted for possible changes. All exams will be closed book, closed notes, except as announced. The first exam is worth 50 points and all others are worth 100 points.

Quizzes: You quiz score will be determined by daily quizzes. The primary type will be short quizzes given at the beginning or end of class to test the skills used on the most recent homework exercises or knowledge of terms and concepts. At other times the "quizzes" will be longer assignments completed together as a class, possibly due the following class period.

Projects: The projects will involve longer applications of the concepts learned in class. You should work in groups of two or three, submitting a single writeup.

Attendance policy: Regular attendance is very important. If you miss a class, it is your responsibility to find out what you missed. If possible, let me know ahead of time.

Exams: *No make-up exams will be given after the scheduled date. If you are forced to miss an exam contact the instructor as soon as possible and submit an absence form (see course website) within one week. Decisions will be made on a case by case basis.*

Quizzes: *Missed quizzes can be made up during office hours before the next class period.*

Course website: The course website will be available through blackboard and will provide information and supplements to the course.

Calculators: A TI83 graphing calculator is recommended for this course.

Academic Honesty: You are expected to do your own work on all exams and quizzes. The penalty for cheating will be a minimum of failure of the exam, with the possibility of failure of the course or even dismissal from the college, as mentioned in the student handbook.

Reaching me: I can be reached outside of class during my office hours at 321D. Email (ccox@icc.edu) is an excellent way to reach me is you have a quick question. You can also call my office; if I'm not in you can always leave a message.

Chapter	Problems
1	5,7 17-25 odd, 35, 37, 47, 51, 57 odd
2	9-19 odd, 31-37 odd, 47- 53 odd, 61-69 odd, 77, 79, 91-99 odd
3	13-19 odd 25-31odd 43, 45. 49
4	1,9,11,35,37,39,41,43, 48-57 all, 62-76 all
5	5,7,15,17,19,21,29,30,33,34, 45-67 odd, 79, 81
6	11-29 odd, 43-53 odd, 63, 65, 67

Calculus & Analytic Geometry 3 Syllabus

MATH 224-COX

Fall 2008

Important Information:

Instructor: Chris Cox

Office: 321D

Phone: 694-8804

Time: MTh 6:00-7:50

Classroom: 323B

Email: ccox@icc.edu

Office Hours: Monday 9-11:00, 5:20-5:50, Wednesday 9-10, Thursday 9-10, 5:20-5:50 and by appointment.

Text: *Calculus: Early Transcendentals*, James Stewart, Sixth Edition.

Prerequisites: MATH 223 with a grade of C or better.

Important Dates:

Monday, September 1	LABOR DAY (No classes)
Monday, September 15	EXAM 1 (Chapters 12 & 13)
Thursday, October 9	EXAM 2 (Chapter 14)
Friday, October 10	MIDTERM (No classes)
Monday, November 10	EXAM 3 (Chapter 15)
Monday, November 24	EXAM 4 (Chapter 16-Part I)
November 25 through 28	THANKSGIVING BREAK
Monday, December 8, 8-9:50	FINAL EXAM

How your grade is determined:

Hour Exams	$4\times100=400$	900-1000: A
Quizzes	200	800-899: B
Assignments	200	700-799: C
Final Exam	200	600-699: D
TOTAL	1000	0-599: F

More detailed information:

Course Description: This course is a continuation of MATH 223 and includes parametric curves, vectors in two and three dimensions, vector valued functions, curves and surfaces in space, curvature, acceleration, quadric surfaces, functions of several variables, partial derivatives and applications, Lagrange multipliers, multiple integrals and integration with polar, cylindrical, and spherical coordinates, and vector calculus, including vector fields, line integrals, Green's Theorem, and the Divergence Theorem.

Exams: All exams will be closed book, closed notes, except as announced. Calculators may be excluded from exams. *You will be expected to show all appropriate work on exams; an answer with no work is not a solution.*

Assignments: There will several longer assignments over the course of the semester designed to test your ability to apply the material you are learning. The assignments may be completed in groups of no more than four students. Solutions should be written up neatly and accurately.

Quizzes: Short, (possibly) unannounced quizzes will be given regularly. Usually they will involve problems similar to recent homework problems.

Attendance policy: Regular attendance is important, as most of you already know. If you miss a class, it is your responsibility to find out what you missed. If you are forced to miss an exam contact the instructor immediately. No makeup quizzes will be after the start of the next class.

My mailbox: If you need to turn in something and miss class, you can drop it off in my mailbox in the MSE office, 320B.

Calculators and computers: It is recommended that you have access to a graphing calculator. As Calculus 3 often deals with three dimensional space, there may be demonstrations or assignments using computer graphing software.

Academic Honesty: You are expected to do your own work on all exams and quizzes. The penalty for cheating will be a minimum of failure of the exam, with the possibility of failure of the course or even dismissal from the college. Refer to the student handbook.

Course Web Page: There will be a Blackboard page for this course that may offer useful supplementary information.

Section   Homework Exercises

Vectors and the Geometry of Space	12.1 Three-Dimensional Coordinate Systems	3-6 all, 7-35 odd, 40
	12.2 Vectors	1-23 odd, 26, 29, 31, 32, 33
	12.3 The Dot Product	1, 3-31 odd, 35, 37, 46, 47
	12.4 The Cross Product	1-17 odd, 25-31 odd, 35, 39, 46
	12.5 Equations of Lines and Planes	3-35 odd, 39, 43, 47, 49, 51, 53, 55, 59, 65, 69
	12.6 Cylinders and Quadric Surfaces	3-19 odd, 21-28 all, 41-46 all
Vector Functions	13.1 Vector Functions and Space Curves	1-17 odd, 19-24 all, 41
	13.2 Derivatives and Integrals of Vector Functions	3-25 odd, 27, 33-37 odd
	13.3 Arc Length and Curvature	1-6 all, 9-23 odd, 24, 25, 36, 37, 41, 45
	13.4 Motion in Space: Velocity and Acceleration	3-15 odd, 19, 21, 23, 27, 29, 33-37 odd

Online Business Calculus Syllabus

MATH 135-COX
Spring 2009

Important Information:

Instructor: Chris Cox   **Email**: ccox@icc.edu
Office: ICC East Peoria, 321D   **Phone**: (309) 694-8804

Course sites: The primary course site is the ICC Math 135 Blackboard site. We will also use the textbook site, linked through the ICC site. See the ILLINOIS CENTRAL COLLEGE homepage (www.icc.edu) if you need instructions on logging in to Blackboard.

Office Hours: Monday 9-9:50, 11-11:50, Tuesday 8-9:50, Wednesday 9-9:50, Friday 9-9:50 and by appointment.

Text: *Calculus and Its Applications*, Bittinger and Ellenbogen, 9th Edition.

Prerequisites: MATH 115 with a grade of C or better.

How your grade is determined:

Online Exams	450	
Homework Exercises	150	
Derivatives Exam	300	
Integrals Exam	300	
TOTAL	**1200**	

1080-1200: A
960-1079: B
840-959: C
720-839: D
0-719: F

More detailed information:

Schedule: The COURSE INFORMATION contains a suggested schedule for working through the sections covered in this course. There will usually be three or four sections per week. Feel free to adjust your weekly schedule as needed as long as you **complete the weekly assignments and exams by the following Monday** at 11:59 p.m.

Homework: Note that the suggested exercises in the lessons will not be collected, though you definitely should work through them. The homework ASSIGNMENTS are administered through the textbook site. Each assignment will ask you to do about four to six problems similar to the homework exercises. You may redo the assignments as many times as you like up to the due date. When you redo an assignment similar (but not identical) exercises will be generated.

Online Exams: The online exams will be posted on Thursday and will be available through the following Monday deadline. You may only take the exams once and you must complete the attempt once you start (it cannot be saved), but there will be a practice version available that can be taken as many times as you like. The practice grade(s) will not count. The 450 points towards online exams will be weight as 70 points for each of the chapter exams and 100 points for the final.

Derivatives and Integrals Exams: There are two proctored exams that you will be required to take in person. These exams are very important and each count for 25% of your grade. The exams will be closed book and graphing calculators will not be allowed. Please bring a photo ID to the proctored exams.

Reaching me: If you happen to be at the East Peoria campus you can visit me during my regular office hours at 321D. Email is an excellent way to reach me if you have a quick question. If you have a general question that you think others in the class might also have you might post it on the appropriate discussion board instead of emailing. You can also call my office (694-8804); if I'm not in you can always leave a message.

INTEGRALS		There are only a few key concepts in calculus but they are deep and powerful, and they have many applications and generalizations.
DERIVATIVES		
FUNCTIONS	LIMITS	

Calculus & Analytic Geometry 2: Syllabus
MATH 223-COX
Spring 2010

Important Information:

Instructor: Chris Cox

Office: 321D

Phone: 694-8804

Time: MTWTh 8:00-8:50

Classroom: 322B

Email: ccox@icc.edu

Office Hours: Monday-Wednesday 7:10-8:00, Tuesday and Thursday 8-9 and by appointment.

Text: *Calculus: Early Transcendentals*, James Stewart, 6th Edition.

Prerequisites: MATH 222 with a grade of C or better.

Important Dates:

Monday, January 18	College Closed
Thursday, February 4	EXAM 1 (7)
Monday, February 22	EXAM 2 (8)
Wednesday, March 3	EXAM 3 (9)
March 15-19	No Classes (Spring Break)
Monday, April 5	Exam 4 (11 part 1)
Tuesday, April 20	Last day to withdraw
Monday, April 26	Exam 5 (11 part 2)
Monday, Monday 17, 8:00-9:50	FINAL EXAM

How your grade is determined:

Hour Exams	$5 \times 100 = 500$	90%-100%: A
Quizzes	300	80%-89%: B
Final Exam	200	70%-79%: C
TOTAL	1000	60%-69%: D
		Below 60%: F

More detailed information:

Exams: The five scheduled exams will occur on the announced dates. All exams will be closed book, closed notes, except as announced. Calculators may be excluded from all or part of the exams.

Quizzes: Your quiz score will be based on short, possibly unannounced quizzes usually similar to recent homework exercises. Occasionally there will be longer in class assignments that count toward your quiz average. Note that the point total for quizzes will not be exactly 300. Your final pointed will be twice your percentage.

Attendance: Regular attendance is important, as most Calculus 2 students already know. If you miss a class, it is your responsibility to find out what you missed. If possible, let me know ahead of time. If you miss an Exam let me know as soon as possible. *Close book quizzes may be made up only until the start of the next class.*

My mailbox: If you need to turn in something and miss class, you can drop it off in my mailbox in the MSE office, 320B.

Course website: The course website will be available through blackboard and will provide information and supplements to the course.

Calculators: It is recommended that you have access to a graphing calculator. There may be in class demonstrations using a TI-86 or TI-89. Calculators will be excluded from some quizzes and exams.

Academic Honesty: You are expected to do your own work on all exams and quizzes. The penalty for cheating will be a minimum of failure of the exam, with the possibility of failure of the course or even dismissal from the college.

Reaching me: I can be reached outside of class during my office hours at 321D. Email is an excellent way to reach me is you have a quick question. You can also call my office; if I'm not in you can always leave a message.

Differential Equations Syllabus
MATH 250–COX
Summer 2010

IMPORTANT INFORMATION:

Instructor: Chris Cox	**Time**: MW 7:30–10:15
Office: 321D	**Classroom**: 215B
Phone: 694-8804	**Email**: ccox@icc.edu

Office Hours: Monday, Wednesday 10:20–11, Tuesday 9–11.

Text: *Fundamentals of Differential Equations*, Nagle, Saff, & Snider, Seventh Edition.

Prerequisites: MATH 224 with a grade of C or better; prior knowledge of the basic concepts of physics recommended.

IMPORTANT DATES:

Monday, June 21	EXAM 1
Monday, July 5	No Class (Recovery Day for July 4th)
Wednesday, July 7	EXAM 2
Wednesday, July 28	EXAM 3

HOW YOUR GRADE IS DETERMINED:

Exam 1	20%	**90%–100%: A**
Exam 2	20%	**80%–89%: B**
Exam 3 (Final)	30%	70%–79%: C
Quizzes	30%	60%–69%: D
TOTAL	100%	0–59%: F

MORE DETAILED INFORMATION:

Exams: The scheduled exams will occur on the announced dates. All exams will be closed book, closed notes, except as announced. Calculators may be excluded from all or part of the exams and quizzes. The third exam will be during the scheduled final period and will be comprehensive but will emphasize material covered after the second exam.

Quizzes: You quiz score will be determined by daily quizzes, including mostly short, closed book quizzes but a few open book in-class assignments. (The point total will not be exactly 100.) There will be a quiz every day except for exam days.

Attendance policy: Regular attendance is very important. If you miss a class, it is your responsibility to find out what you missed. If possible, let me know ahead of time.

Exams: If you are forced to miss an exam contact the instructor as soon as possible. Decisions for make-ups will be made on a case by case basis.

Quizzes: Missed quizzes can be made up only until the next class period. (If for some reason you miss a quiz and cannot make it up by the start of next class contact the instructor by email explaining the reason for the absence.)

Academic Honesty: You are expected to do your own work on all exams and quizzes. The penalty for cheating will be a minimum of failure of the exam, with the possibility of failure of the course or even dismissal from the college, as mentioned in the student handbook.

Reaching me: I can be reached outside of class during my office hours at 321D. Email (ccox@icc.edu) is an excellent way to reach me is you have a quick question. You can also call my office but I will be checking voicemail infrequently over the summer.

	Section		Suggested exercises
Introduction	1.1	Background	1-16 all
	1.2	Solutions and IVP	1-11 odd, 15, 16, 23, 25, 27
	1.3	Direction Fields	1,2, 3-7 odd, 11-17 odd
	1.4	The Approximation Method	1-11 odd, 15 (Newton's)
First Order DE	2.2	Separable Equations	1-25 odd, 29
	2.3	Linear Equations	1-21 odd, 35
	2.4	Exact Equations	1-23 odd, 32
	2.5	Special Integrating Factors	7-12
	2.6	Substitutions	9-31 odd

5   TEACHING PHILOSOPHY

I have had the opportunity to teach thousands of students: traditional community college students in vocational or transfer programs, older students returning to finish their degrees, high school students in dual credit classes, undergraduates at a selective private research university, and even a class of home-schooled junior high students who had fallen behind. I've met them in classes ranging from remedial math to Differential Equations, most face-to-face but some through the introduction thread of an online discussion board or through a closed circuit distance learning connection. While the topics and details of a well-prepared lesson plan vary by audience, I believe the following three ideas are at the core of effective teaching at any level.

Be both honest and encouraging.

Teachers have a constant stream of opportunities to be encouragers. It is easy and rewarding to offer praise when a student advances the class discussion with a key insight or discovers a clever solution to an integration problem on an exam that you had not even considered. It is more challenging when a struggling student vents his frustration in an angry email blaming the textbook or the instructor, but this is often the time the student needs encouragement the most.

Complicating the teacher's job, though, is the fundamental importance of giving honest feedback. Listening to my fellow grad students in the Calculus Help Room, one of the most common missteps I notice is comforting struggling students by telling them that everything will be fine if they just learn this method or do these five problems. Such assurances are motivated by a genuine desire to help, but in cases where a lot more work is needed this advice will not benefit the student. In my early days of teaching online classes, I fell into this trap myself. The inherent flexibility of scheduling is convenient for students, but also leads to overly optimistic plans for catching up once they begin to fall behind. After allowing several students to waste effort when catching up was not a realistic possibility, I was reminded that sometimes it is necessary to supply students–as kindly as possible–with a more realistic perspective that will get them back on track.

Engage your students.

Whenever I enter a classroom I have two goals: making the most out of my time with the students by keeping them active and focused, while also instilling an understanding that their continued work outside the classroom is crucial to their success.

No matter how effective you are as a lecturer, inspiring students to work outside of class is paramount, and in an alternate format like online classes *everything* is outside of class. For lower level classes, where students can use a little more motivation to maintain regular study habits, I have used a variety of online homework systems, most recently settling on Webwork. For any class, there is no substitute for a clear syllabus with a well established schedule. Frequent updates on where we are and what needs to be done before the next exam encourage a proper sense of urgency and diligence.

The first step in engaging students is taking the time to learn everyone's name. With over a hundred students every semester I taught at Illinois Central College, it was sometimes

a challenge, but I usually met my goal of knowing everyone by the time I handed back the first exam. In many classes I got to know my students through short, daily diagnostic quizzes, a practice that also had the benefit of letting my students know how they were doing and alerting me to areas that needed more focus. It also made it clear that every day each student was expected to participate. Engaging students during lectures starts with asking good questions and waiting for answers. When I was younger I shied away from a ten second pause, but that's often necessary for contemplating a worthwhile question. Other methods of engagement require more planning. For example, in a Calculus class technology offers a chance to insert a well-placed applet or a 3D figure too complicated to draw on the board, even occasionally a short video. For longer classes, I often include a group project, both as an alternative learning tool and as a break from the lecture. But the better part of any class I teach is always at the board, learning and doing math along with the students, sometimes selling them on a technique and sometimes working through difficult problems with help from the class, running into the pitfalls and dead ends they will eventually have to navigate by themselves.

Renew yourself.

In my experience, the majority of lackluster teaching stems not from any lack of skills but from teachers who are worn out or even jaded. At an evaluation after my first year of full-time teaching, the department chair offered many useful and encouraging observations, but the only comment I still remember is his strong admonition for me to hang out for twenty minutes every morning in the lounge and talk to my colleagues. Already overloaded, I thought this a luxury I could not afford, but those busy times are when one is in the most danger of becoming isolated. Talking to my colleagues renewed me every day.

Periodically, I had the opportunity to spend longer periods at conferences refocusing, including several opportunities to attend a Great Teacher Seminar. This teacher-organized retreat not only gave me greater insight into the nuts and bolts of teaching (assessment, collaborative inquiry, and learning styles, for example), but even more importantly reminded me of why I chose to become a teacher in the first place.

Another big key for me in staying fresh has been to regularly return to the role of a student. During my tenure as a community college teacher, I took computer science courses at a local university, classes that were useful for the content and for reminding me what it is like to be the one taking exams. Returning to graduate school and becoming a full-time student again was not easy, but it has been extremely valuable in renewing my perspective. Struggling over homework exercises during my first two years and then venturing into uncharted territory with my dissertation reminded me, in case I had forgotten, that math can be hard. But it also reminded me that problems that seem intractable can be worked through, eventually, with hard work and patience. Armed with this dual perspective, I am excited to return to teaching.