BCUSP 125 : Calculus II
Course Syllabus-Spring 2007

Instructor: Charles F. Jackels
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Office Hours: Tuesdays (10 -11 AM, before class, Room UW2-312), Wednesdays
 (11AM – noon, room UW2-312), and by appointment. It is best to check
 with me ahead of time, even for a visit during normal office hours,
 especially if you are making a special trip for that purpose. I am in one of
 my offices for considerable periods every day (approximately 8-5) and
 will be glad to make appointments outside of the nominal office hours.
 If my UW2 office is inaccessible to you during the elevator outage in that
 building, make an appointment with me to meet in UW1-360D, my
 administrative office.
Class Times: 11:00 – 12:25 PM, Tuesday, Thursday, Friday, Room UW1-020.
 Computer lab UW2-105 of Fridays.
Short Quizes: On four Tuesdays, *during the first 15-30 min of class.*
Mid Term Exam: May 4, in class
Final Exam: June 5, in class
Required Text: "Single Variable Calculus: Early Transcendentals", James Stewart,
 (Thomson Brooks/Cole, Belmont [CA], 2007)

Reserve Material: The following journal articles are part of the course reading list, and
 others may be added as the term progresses. They will be available on
 electronic reserve at the following URL:
 http://www.bothell.washington.edu/library/reserve.html

- "The Science behind SUDOKU", Delahaye Jean-Paul. Scientific
  American, Jun 2006, Vol 294(6), pp 80-87.
- "The Limits of Reason," Chaitin Gregory. Scientific American March
  2006, Vol 294(3), pp 74-81.
- "The Shape of Space," Collins Graham P. Scientific American Jul
  2004, Vol 291(1), pp 86-93.
- "The Arithmetics of Mutual Help," Nowak Martin A, May Robert M.,
  and Sigmund, Karl. Scientific American Jun 1995, Vol 272 (6), p
  76ff.
- "Fermat's Last Stand," Singh Simon and Riber, Kenneth A. Scientific
  American, Nov 1997, Vol 277 (5), pp 68 ff.
- "Resolving Zeno's Paradoxes," McLaughlin, William L. Scientific
  American Nov 1994, Vol 271 (5), pp 84ff

Other required articles may be added during the course of the term.

Course Description (from catalog)

Calculus II: Foundations and the Emergence of Modern Analysis.

  (Charles F. Jackels)

Focuses on the historical emergence of modern calculus, the Fundamental Theorem, area, volume, and area length calculations, properties and applications of the integral, infinite series, Taylor and Fourier expansions, and the Weierstrass definition of limit. Emphasizes problem-solving and mathematical thinking. Prerequisite: minimum grade of 2.0 in B CUSP 124.

Specific Course Goals

1. To gain a basic understanding of the concepts of integral calculus and the methods of its application.
2. To gain the ability to apply integral calculus to interesting and important problems, especially in the sciences.
3. To gain a basic understanding of the nature of infinite series, their representation of functions, and their importance in mathematics and science.
4. To develop skills necessary to solve complicated mathematical problems both by hand and where appropriate, with a computer algebra system.
5. To develop the written and oral communication skills necessary to effectively communicate mathematical ideas.

Background

It is expected that the student in this course will have successfully completed (grade ≥ 2.0) a college-level course in differential calculus, such as BCUSP 124 or its equivalent..

Partners and Study Groups. You will sign up as partners and group members on the first class day. These groups will be the basis for discussions both in class and out of class, for group homework assignments, and for group project activity. The group may also be called upon to make presentations in class. *Much of this group interaction and peer review of your papers may be accomplished electronically.*

Presentation/writing Assignments. There will be one "formal" relatively limited writing/presentation assignments. Details will be given out in a separate handout as each assignment is made. All written assignments will be submitted electronically and presentations will be at the assigned time, *and none will be accepted late.*

Class Participation, Homework and Workgroup Problems.

Significant class time will be spent in discussion and student presentation mode. Students or workgroups will be contributing to and leading discussions of the problems we are working.

Students will be graded based on their participation in these class discussions. If you are missing from class, you cannot make up the participation grade.

There will be eight homework problem assignments given during the term. Many problems will be similar to those in the text book, but some will be more involved and challenging. Some of these will be individual efforts, but others may involve a collaborative effort with your class partner. *If you are unsure about the degree of collaboration, if any, permitted on a particular assignment, ask the instructor!* Typically, the homeworks will have one part that must be handed in electronically to E-submit and a larger part that be handed in electronically or on paper. Most often they will be due on Tuesday morning at the start of class.

The workgroups will be given problems to solve, write-up, and sometimes present in class. There will be several of these "Workgroup Exercises" during the course of the term. In some cases the groups will work on them during class time . Members of the workgroup who are not present for these exercises will receive no credit for them.

Quizes. Short quizes (15-30 min) will given, usually at the start of class on four Tuesdays. These are designed to test your understanding of the broad concepts from the previous two week's readings. Preparation for these consists of doing the assigned readings, working examples in the text, and having completed the homework assignment for that week. You would not be expected to have the degree of mastery that would be assumed for exam material. *Your lowest quiz score will be dropped.*

Exams. The midterm examination will each be based upon approximately one-half of the course material.   The final exam will cover the whole course, but with an emphasis on the second half of it. *All math exams are, of course, cumulative in nature.* The exams may be mixtures of quantitative problems, derivations, short answer questions and calculator/computer assisted problems.   The exams are always to be completed in standard examination books (green or blue books from the book store). Buy large three exam books ahead of time, so that you do not have to waste your exam time going to the book store! Most exam and test questions will be graded primarily for content and your understanding of the concepts involved. Errors in grammar, spelling, etc., will influence these grades to the extent that they make it difficult to understand your reasoning and explanations. *A calculator may be needed for some exam problems. You will be told specifically when you may use it.. If the computer is needed for an exam, you will be sent to the laboratory.*

Back-up Copies. You are responsible for maintaining back-up copies of all assignments. If an assignment should be lost or misplaced during the submission or grading process, it is your responsibility to provide a copy of that assignment upon request. Always maintain current backup copies of all of your work. Computer crashes <u>do not qualify</u> as "emergencies" in this class.

Classroom Rules. These basic rules, in addition to the requirements of the UWB Handbook, apply to all students at all times in the classroom. If you cannot observe them at any time, you are expected to leave the classroom:
- No use of computers for web surfing, e-mail, or any other activities not directly related to class.
- No headphones, blue tooth earphones, etc in the classroom.
- No cell-phone calls, rings, musical interludes, etc., during class.
- All views are to be heard and engaged respectively. As scholars, we are expected to analyze subject matter critically and express reasonable positions that are based on logic and fact rather than on emotion. **In no case are *ad hominem* arguments permitted in BCUSP 125.**

Attendance: Class & Exams. Any excuse for missing an exam *other than illness or family emergency* must be cleared with me at least one week ahead of time. If you cannot attend class **on an exam day because of illness or emergency,** you are expected **before class** to contact me by phone, leave a voice mail message, leave a message for me with the Computing and Software Systems office, or leave me an e-mail message. Failure to notify me in one of these ways may result in you not receiving consideration for a make-up examination. *Note that quizzes cannot be made up; a missed quiz becomes your dropped score.*

Regular class attendance is expected, although roll calls will not be generally taken. If you are not present to participate in class discussion, work group discussion and/or presentation of a "homework" exercise, that will, of course, profoundly affect your grade on that assignment. Missed in-class work (for whatever reason) *cannot* be made up.

Late Assignments. Assignments with due dates will not be accepted late, unless otherwise noted in the assignment instructions. If you are out of town on an assignment due date, it is your responsibility to arrange for internet access and submit the assignment electronically or to submit it before you leave. Electronic submissions will have due dates posted on E-submit. Papers due in class *must* be placed on the table in the front of the room by 10 minutes after class starts. They may not be submitted late – don't bother asking. *If you are going to be late for a class that has homework due, either send it with a friend, turn it in to me earlier, or submit it electronically via the web.*

Documented Disabilities
If you believe that you have a disability and would like academic accommodations, please contact Disability Support Services at 425.352.5307 or at rlundborg@uwb.edu. After an initial intake appointment, you should be prepared to provide documentation of your disability in order to receive assistance.

Academic Honesty

The highest standards of academic honesty will be expected in this class. Cheating and plagiarism in any of their forms are unacceptable. At the least, a grade of zero will be assigned to any work that is the product of cheating or plagiarism. Plagiarism is also discussed in the 1993-1995 UW Bothell Catalog:

> "Plagiarism is the use of the creations, ideas or words of someone else without formally acknowledging the author or source through appropriate use of quotation marks, references, and the like. Plagiarizing is stealing someone's work and presenting it as one's own original work or thought. Student work in which plagiarism occurs will not ordinarily be accepted as satisfactory by the instructor, and may lead to disciplinary action against the student submitting it. Any student who is uncertain whether his or her use of the work of others constitutes plagiarism should consult the course instructor for guidance before formally submitting the course work involved."

Work that is assigned to you alone is to be assisted by no one else. When collaboration on homework is permitted, that fact will be made explicit. Assume that all assignments are to be individual work unless I indicate otherwise. The official UWB information on academic integrity is to be found at http://www.uwb.edu/students/policies/integrity.html. Each student is responsible to read and understand that information. *It is your responsibility to clarify with me any uncertainty that may exist on this question. Do not assume that an action is acceptable; ask me to be sure.*

Work turned in for this course may be subject to electronic checking for plagiarism.

Grades.

The final grade will be determined numerically by averaging your scores with the following weights:

Final Exam	25%	Homework Assignments (8)	20%
Midterm Exam	20%	Presentation Project	5%
Quizes (4, lowest one dropped)	15%	Workgroup assignments and class participation	15%

Most grades given during the course of the term will be based on a 100-pt scale. The **official decimal class grades** (0.0 - 4.0) will be determined from a weighted average of your individual grades. A weighted average of 96 will be assigned a decimal grade of 4.0, and a weighted grade of 55 will be assigned a decimal grade of 0.7. Intermediate grades will be determined by a linear relationship between these two limits. This scale represents a *minimum* decimal grade. If I judge it to be appropriate, I will give higher grades than those indicated by this scale. Based on experience, the class GPA will likely fall in the range 2.7-3.0 (a "B" average).

The following table represents the official UW conversion of standard letter grades to the UW decimal grade scale and the conversion to the 100-pt scale used in this class:

	A Range		B Range			C Range			D Range		
Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	D-
Min Decimal	3.9	3.5	3.2	2.9	2.5	2.2	1.9	1.5	1.2	0.9	0.7
Min 100-pt	95	90	86	82	77	74	70	65	61	57	55

Library Materials:

There is a link on the course home page that connects to the library reserve catalog. Many useful reference materials are to be found in one of the UW libraries on the UWS campus rather than at UWB. These can be obtained with little effort via electronic document delivery or the courier service. Make sure you know how to use this service.

The electronic reserve page for the course has articles that we will be reading during the course of the term. If you wish hard copies of these articles, you are responsible for printing them. There is a link to the E-Reserve on the course home page.

Use of E-Mail

You will be required to use e-mail as part of this course. Since our personal contact hours are quite limited, this will be a major avenue for our communication. In addition, I will use the class e-mail list, listserve, and web page as means of broadcasting information to the class. It is assumed that class members are reading their e-mail on a daily basis. You may, of course, read your e-mail anywhere of your choosing, but it is required that you will have an active account of the form UWNetID@u.washington.edu that you check or forward daily. You can set up your account from the UW Web page. There is also a link on our course home page that takes you to UW on-line documentation that explains how to set up an account, how to send e-mail, etc.

There is a web-based U-mail form set up that allows you to send me either identified or anonymous e-mail from the browser. It can be found at URL:
https://catalysttools.washington.edu/tools/umail/form/?i=1852&o=jackels
and there are links to this Umail form on the course home page.

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Class Listproc

A listserver has been set up for the class. Any message or reply sent to this address is rebroadcast to the entire class. You are welcome to use this when you want to communicate with the entire class. Your UWNetID e-mail account is automatically subscribed to this listproc. The e-mail address for this is: ***bcusp125a_sp07@u.washington.edu***

Note the single underscore between "bcusp125a" and "sp07"; it is required.

Use of Class Discussion Board

I have set up a computer discussion board for our use. This is an excellent medium for class discussions. Any class member can post to the bulletin board. It forms a "running" conversation that can be about the lectures, problem assignments, etc. I am using Go-Post for this purpose. The bulletin board is found at:

https://catalysttools.washington.edu/gopost/board/jackels/927/

A link to this bulleting board will appear on the course web site. When you first access this message board, you will establish a username and password. You can also click on "configure" in order to select the type of e-mail notification to be provided. You can be automatically notified when someone has posted a message to the board.

Electronic Submission of Assignments

Most assignments for this course will be submitted electronically. The E-submit site for this purpose is found at:

https://catalyst.washington.edu/webtools/secure/esubmit/turnin.cgi?owner=jackels&id=5887

Course Home Page

My personal home page is found at the URL:

http://faculty.washington.edu/jackels

Click on the entry referring to this course and you will find yourself at the course home page:

http://faculty.washington.edu/jackels/bcusp125.s07

Tentative Class Schedule (subject to change)

DATE	READING	TOPICS
Mar 27		
Mar 29	Parts of Stewart § 4.5-4.7	
Mar 30		
Apr 3	Stewart § 5.1	**HW1 due**
Apr 5	Stewart § 5.2-5.3	
Apr 6		
Apr 10	Stewart § 5..4	**Quiz1; HW2**
Apr 12	Stewart § 5..5	
Apr 13		
Apr 17	Stewart § 6.1, 6.2	**HW 3**
Apr 19	Stewart § 6.3	Article Presentation Paper A
Apr 20		
Apr 24	Stewart § 6.4, 6.5	**Quiz 2; HW4**
Apr 26	Stewart § 6.6	Article Presentation Paper B
Apr 27		
May 1	Stewart § 7.1, 7.2	**HW5**
May 3	Stewart § 7.3	Article Presentation Paper C
May 4		**Midterm Exam #1**
May 8	Stewart § 7.4, 7.5	
May 10	Stewart § 7.6	Article Presentation Paper D
May 11		
May 15	Stewart § 8.1	**Quiz 3; HW6**
May 17	Stewart § 8.2	Article Presentation Paper E
May 18		
May 22	Stewart § 8.3	**HW 7**
May 24	Stewart § 8.4, 8.5	Article Presentation Paper F
May 25		
May 29	Stewart § 8.6	**Quiz 4; HW 8**
May 31	Stewart § 8.7	
Jun 1		Review
Jun 5	{review}	**Final Exam**