CALCULUS 3 MTWF 1:00-1:50PM FALL 2005 HICKOK 307

Instructor:	Jonathan White
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Office:	Hickok 206A
Office Hours:	MWF 9:00-9:50am, MW 3:00-3:50pm and by appointment
Office Phone:	399-8280
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Text:	*Calculus, Single and Multivariable*, 3rd Edition, Hughes-Hallett et al.
Problem Sets & Quizzes:	Assorted Problem Sets will be given throughout the term to supplement class work. Many of these will benefit from the use of the software package *Mathematica*, which is available on the computers in the labs in Hickok and Peterson. Quizzes will also be given frequently. Combined these will be worth 200 points (2/7 of the final grade).
Exams:	There will be three in-class exams administered during class time. The dates of these are indicated in the schedule on the back side of this sheet. These exams will be worth 100 points (1/7 of the final grade) each. The final exam will be held during finals week at the date and time indicated on the back side of this sheet. The final will be worth 200 points (2/7 of the final grade).
Grading:	Grading will approximately follow a 90% A, 80% B, 70% C, 60% D scale.
Makeups:	Makeups for exams will generally be allowed only under extenuating circumstances, with documentation and advance notice when humanly possible. Late problem sets and quizzes will generally not be accepted, and if accepted due to extenuating circumstances will generally be subject to a penalty of 20% of the possible points for each day past due.

Calculus 3 is the culmination of the calculus sequence, and this presents challenges in at least three respects. First, ability to visualize and use spatial intuition is taken to a new level. Second, computations are in some cases correspondingly bigger and longer. Third, abstract theoretical considerations become a more central element, sometimes overshadowing mere computations as the most important material.

In response to all three of these considerations the judicious use of technology can be a valuable aid. Sophisticated calculators such as the TI-89 and computer software packages such as *Mathematica*, when used properly, can lead to easier and deeper understanding of the course material. However the use of this technology itself involves a significant learning experience, and often significant frustrations. We will attempt to use *Maathematica* in this course when the benefits are the greatest, and assist you in its use enough to keep the frustrations to a minimum.

If at some point these challenges or frustrations get too bad, I strongly encourage you to see me for extra explanation -- don't wait until you're overwhelmed. I'm here to help.

Tentative Schedule

Monday August 29th §12.1 $f:\mathbb{R}^2\to\mathbb{R}$	Tuesday August 30th §12.2 & 12.3 Graphs	Wednesday August 31st §12.4 Linear Functions	Friday September 2nd §12.5 $f:\mathbb{R}^3\to\mathbb{R}$
Monday September 5th No Class – Labor Day	Tuesday September 6th §13.1 & § 13.2 Vectors	Wednesday September 7th §12.6 Limits	Friday September 9th §13.3 Dot Products
Monday September 12th §13.4 Cross Products	Tuesday September 13th §14.1 & §14.2 Partial Der.	Wednesday September 14th §14.4 & 14.5 Gradients and $f_{\mathbf{u}}$	Friday September 16th §14.6 The Chain Rule
Monday September 19th §14.7 2nd-order Partials	Tuesday September 20th §14.8 Differentiability	Wednesday September 21st Review	Friday September 23rd **Exam 1**
Monday September 26th §15.1 Local Extrema	Tuesday September 27th §15.2 Optimization	Wednesday September 28th §15.2 Optimization	Friday September 30th §15.3 Constrained Opt.
Monday October 3rd §16.1 Definite Integrals	Tuesday October 4th §16.2 Iterated Integrals	Wednesday October 5th §16.2 Iterated Integrals	Friday October 7th §16.3 Triple Integrals
Monday October 10th §16.3 Triple Integrals	Tuesday October 11th §16.3 Triple Integrals	Wednesday October 12th App. B: Polar Coordinates	Friday October 14th §16.4 Int. in Polar Coord.
Monday October 17th No class – Fall Break	Tuesday October 18th No class – Fall Break	Wednesday October 19th §16.5 Int. in Sph. and Cyl.	Friday October 21st §16.5 Int. in Sph. and Cyl.
Monday October 24th §16.6 Applications to Prob.	Tuesday October 25th §16.7 Change of Variables	Wednesday October 26th Review	Friday October 28th **Exam 2**
Monday October 31st §17.1&2 Parametric Curves	Tuesday November 1st §17.3 Vector Fields	Wednesday November 2nd §17.4 Flow	Friday November 4th §18.1 Line Integrals
Monday November 7th §18.2 Line Integrals	Tuesday November 8th §18.3 Path Independence	Wednesday November 9th §18.4 Green's Theorem	Friday November 11th §17.5 & §19.1 Flux Integrals
Monday November 14th §19.2 Tidy Flux Integrals	Tuesday November 15th §19.3 Less Tidy Flux Integrals	Wednesday November 16th §19.3 Less Tidy Flux Integrals	Friday November 18th §20.1 Divergence
Monday November 21st §20.2 The Div. Theorem	Tuesday November 22nd §20.3 Curl	Wednesday November 23rd No class – Thanksgiving	Friday November 25th No class – Thanksgiving
Monday November 28th §20.4 Stokes' Theorem	Tuesday November 29th §20.5 The Fun. Theorems	Wednesday November 30th Review	Friday December 2nd **Exam 3**
Monday November 5th App. C: Complex Numbers	Tuesday November 6th App. C: Complex Numbers	Wednesday December 7th App. C: Complex Numbers	Friday December 9th Review
Wednesday December 14th – 11am – Final Exam			

Any students with disabilities which might affect their performance in this class should contact me as soon as possible to arrange accommodations.

The faculty has adopted a policy on academic integrity. It is your responsibility to understand and follow it.

Diversity, in all its forms, is valuable.