Multivariable Calculus   MAT 4833   Fall 2017
Dual Credit with BSU MATH 267 (Calculus 3)
Mrs. Wright

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Office Hours:

Monday:	12 pm – 12:50 pm	
Tuesday:	11 am – 1 pm, 2 pm – 4 pm	*Also by appointment*
Wednesday:	12 pm – 12:50 pm	*If my door is open feel free to stop in!*
Thursday:	2 pm – 5 pm	
Friday:	12 pm – 12:50 pm	

Text: *Calculus: Early Transcendentals,* 7th edition, by James Steward. Brooks/Cole, 2012.
ISBN 978-0-8400-5885-0
Also Required: TI – 89 or TI – 92 or higher calculator
Prerequisite: AP Calculus BC 2 (Calculus 2) or appropriate score on math placement exam

Course overview:
This course extends the concepts and methods of calculus to a higher-dimensional setting. The content includes vectors, higher-dimensional analytic geometry, vector-valued functions, space curves, motion in space, functions of two or three independent variables, rates of change, optimization, multiple integrals, surface integrals, and potentials. The objectives include continued growth in expressing mathematical ideas in written and spoken form.

Attendance:
You are required to attend every class session, in accordance with Indiana Academy attendance policies. I understand clocks can be a minute or two off, so I will grant leniency for the first 10 minutes of class, but at 10 or more minutes you are officially "Tardy" and after 15 minutes you are officially "Absent." However, class time is very valuable, so I strongly encourage you to get to class no matter how late you may be. This will make your process of learning what was covered in class that day much easier. Sleeping in class will result in an unexcused absence without notice.

Evaluation:
In this course you will be given regular homework assignments, periodic quizzes, and 5 tests, as well as the final. The homework assignments are due as listed on the course assignment schedule. The quizzes will generally take about 20 minutes and be worth 20 points each, over material covered the previous week. The tests are not cumulative in the sense that you will see questions directly from previous chapters, but Calculus especially is a cumulative discipline so you will need to apply knowledge from previous chapters to help solve new problems. The final exam will take place during finals week. For dates of tests please refer to the most recent version of the course schedule.

Grading Scheme:
Your grade in this course will be determined by the following percentage values. Remember that you EARN your grade, I do not give them out, so if you want a better grade be proactive about getting more help, there are many resources available to you!

Tests – 50% (10% each)
Final Exam – 20%
Quizzes – 10%
Homework assignments – 10%
Participation/Projects – 10%

Letter grades are determined by the following scale:
93-100   A
90-92   A-
87-89   B+
83-86   B
80-82   B-
77-79   C+
73-76   C
70-72   C-
69 and below D*

Make-up work Policy:
NO LATE WORK WILL BE ACCEPTED. If you are absent (excused absence) that day it is your responsibility to get that work turned in to me as soon as possible **and** before the next class meeting. My office is in your dormitory building so it should be simple enough for you to be able to bring that assignment to my office and leave it under my door. If you will be missing a test you must contact me as soon as you know you will be missing it and schedule a time for you to take the test with me. **In the event of an <u>unexcused absence</u> or <u>suspension</u>, missed homework assignments, quizzes, test, etc. will NOT be accepted for credit** (except when missed work would fail the suspended student)**.** Make-up quizzes, exams, etc. generally are not taken during class time.

Other policies:
- Laptops will be helpful in class for some activities. When you use your laptop please keep the volume turned off, and use it exclusively for class related things. This means no email, Facebook, Tumblr, Twitter, games, etc. You may use the laptop for taking notes or writing out homework answers. If you write your homework solutions using the laptop, either print the assignment or email it to me *before coming to class*. While on the laptop in class do not hide toolbars; keep all items you are working on visible on the screen and available for teacher inspection. Keep the laptop turned off and closed during tests and quizzes. You are expected to bring your graphing calculator to class EVERY DAY, as well as your text book, both will be absolutely necessary.
- On your homework assignments the work should be your own but you are welcome to receive hints and help from me, other teachers, your peers, and others. However, any and all work on tests, quizzes and projects MUST be your own!

Academic Integrity
I support and abide by the academic integrity policy as set forth in the Student Handbook. While you are encouraged to work together in this course at times, here are a few examples of behavior subject to review under the Academic Integrity policy:
- Copying someone's work and turning it in as one's own
- The use of aids or other materials on quizzes and exams without expressed permission
- The use of calculators when explicitly asked not to do so
- Copying another person's work or answers on a quiz or exam

Ball State University aspires to be a university that attracts and retains a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our Beneficence Pledge and through university resources found at http://cms.bsu.edu/campuslife/multiculturalcenter.

The teacher reserves the right to change this syllabus as situations arise, or add to it as needed.

Multivariable Calculus Course Topic Schedule
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Week 1: Conic sections, conic sections in polar coordinates, three-dimensional coordinate systems, and vectors.

Week 2: Dot products and projections, cross products, lines, planes, first quiz.

Week 3: Cylinders and quadric surfaces, first test, vector valued functions and space curves.

Week 4: Derivatives and integrals of vector functions, arc length and curvature, motion in space, historical background on Copernicus and Kepler.

Week 5: Kepler's first law, second test.

Week 6: Functions of several independent variables, limits and continuity, partial derivatives, tangent planes and linear approximations.

Week 7: Chain rule, directional derivatives, gradients, next quiz, and extreme values with the second derivative test.

Week 8: Extreme values on closed, bounded set, Lagrange multipliers, next quiz.

Week 9: Third test, double integrals over rectangles, iterated integrals, double integrals over general regions.

Week 10: Double integrals over general regions.

Week 11: Double integrals in polar coordinates, applications of double integrals, surface area, triple integrals.

Week 12: Triple integrals in cylindrical coordinates and spherical coordinates, change of variables in multiple integrals, next quiz.

Week 13: Fourth test, vector fields, line integrals, fundamental theorem of line integrals

Week 14: Fundamental theorem of line integrals, flow, circulation, flux, greens theorem, next quiz.

Week 15: Divergence and curl, parametric surfaces and their areas, surface integrals, next quiz.

Week 16: Surface integrals, Stokes' theorem, Divergence theorem, next quiz.

Week 17: Last test and review for final exam.