Syllabus for Math 229, *Vector Calculus with Chemical Applications*

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Spring 2020, Revised February 14

1 Basic information

**Class times and places.** Monday, Wednesday and Friday noon–12:50 and Tuesday and Thursday 12:15–1:30, in MYBK 117.

**Textbook.** We use the eponymous PDF book *Math 229: Vector Calculus with Chemical Applications* by Professor Jason Howell and myself, which will be distributed through OAKS. Thus there is no text that you need to buy. However, if you want a printed book that complements the material, one inexpensive choice is *The Chemistry Maths Book* by Erich Steiner, Oxford University Press.

**Professor.** Dr. Brenton LeMesurier

**Professor’s Office hours.** To be arranged during the first week of classes; for now I am available at 11 am each day, and by appointment.

**Professor’s Office.** Room 344, Robert S. Small Building (opposite Maybank Hall).

**Professor’s Email Address.** lemesurierb@cofc.edu

**Professor’s Office Phone.** 953-5917, messages 953-5730.

**Professor’s Website.** [http://blogs.cofc.edu/lemesurierb/](http://blogs.cofc.edu/lemesurierb/), but most online communication will be provided through OAKS.

**Prerequisites.** C− or better in MATH 120 or HONS 115.
2 Course Objectives and Student Learning Outcomes

By the end of the course, students should:

- be familiar with multidimensional coordinate systems and how to convert coordinates, functions, and equations from one coordinate system to another;
- be able to use vectors to describe lines and planes in multidimensional space;
- be able to Represent geometric actions and transformations through matrix operations on vectors;
- be able to Represent functions using infinite series;
- be able to Calculate partial derivatives of multivariate functions;
- be able to Calculate integrals of multivariate functions.

These outcomes will be assessed on the final exam.

3 Study Aids

Reading Assignments and Question Time. I will usually set reading at the end of each class, and start each class with time for questions on the reading, exercises and such.

Practice Problems and Exercises. The PDF book for this course contains numerous Practice Problems (with solutions) and Exercises (solutions provided later); reading each section as we cover it in class and then working on these is a good place to start your study.

Peer Tutor. I plan to have a peer tutor (an advanced Math/Chemistry major) who will run practice sessions about once a week; tentatively on Fridays. Those will be one opportunity to ask questions about and work on Examples, Practice Problems and Exercises in the book, and so on.

4 Graded Work and Grading Scheme

4.1 Quizzes

There will be a quiz most weeks, usually in the Tuesday or Thursday classes. The content of the quizzes will be based on lectures, reading assignments, and the above practice problems and exercises. No make-up quizzes will be given; however, the lowest quiz score score will be dropped.

4.2 Midterm Exams (Revised Schedule)

There will be four midterms; scheduled for the Thursday classes of January 30, February 20, March 12, and either April 9 or April 16.

If you miss any of these, the score can be made up only for very convincing reasons, documented through The Office of the Associate Dean of Students: see http://studentaffairs.cofc.edu/about/services/absence.php

The make-up score will then be based on your results on the corresponding part of the final exam.

4.3 Final Exam

The final exam will be on either Saturday April 25 or Wednesday April 29 from 4 to 7 pm; We have a choice of day, due to meeting both MWF and TR, so the choice will be discussed in class.
4.4 Grading Scheme

The total grade will be weighted 15% on the quiz total, 15% on each midterm exam, and 25% on the final exam. However, if the final exam grade is higher than the lowest mid-term grade or the quiz total, the final exam will have weight 35%, and that low score will count only 5%. The aggregate score guarantees at least the following letter grades:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90–100</td>
</tr>
<tr>
<td>A−</td>
<td>87–89</td>
</tr>
<tr>
<td>B+</td>
<td>84–86</td>
</tr>
<tr>
<td>B</td>
<td>80–83</td>
</tr>
<tr>
<td>B−</td>
<td>77–79</td>
</tr>
<tr>
<td>C+</td>
<td>74–76</td>
</tr>
<tr>
<td>C</td>
<td>70–73</td>
</tr>
<tr>
<td>C−</td>
<td>67–69</td>
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<td>D+</td>
<td>64–66</td>
</tr>
<tr>
<td>D</td>
<td>60–63</td>
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<tr>
<td>D−</td>
<td>57–59</td>
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5 Participation Requirements

Attendance to all classes is expected, as is active participation in all the work described above. You are responsible for knowing what happens in each class including assignments, information about quiz and exam topics, and due dates: thus if you miss a class, check for news, either from a classmate or from me; checking the course’s section in OAKS should help.

Absence from an exam or more than three quizzes without adequate explanation will lead to failing the course due to absence (formerly known as W/A). Thus if you miss any of these, you should contact me promptly to explain why.

6 Accommodations for Students with Disabilities

If you have a documented disability, please contact me during the first two weeks of class or as soon as you have been approved to receive accommodations, so that reasonable accommodations can be arranged. Approval for such accommodations is arranged through the Center for Disability Services: see http://disabilityservices.cofc.edu/accommodations/

7 College of Charleston Honor Code and Academic Integrity

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Cases of suspected academic dishonesty will be reported directly to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration -- working together without permission -- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or exam, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance.

Students can find the complete Honor Code and all related processes in the Student Handbook at http://studentaffairs.cofc.edu/honor-system/studenthandbook/
### 8 Some Important Dates and Times

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Wednesday January 8</td>
<td>First day of classes.</td>
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<tr>
<td>Wednesday January 15</td>
<td>Last day to drop/add courses.</td>
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<tr>
<td>Monday January 20</td>
<td>Martin Luther King Day—No classes.</td>
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<tr>
<td>Thursday January 30</td>
<td>Mid-term Exam 1.</td>
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<tr>
<td>Saturday February 15</td>
<td>Storm make-up day, if needed.</td>
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<tr>
<td>Thursday February 20</td>
<td>Mid-term Exam 2, new date.</td>
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<tr>
<td>Thursday March 12</td>
<td>Mid-term Exam 3, new date.</td>
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<td>Friday March 13</td>
<td>Last day to withdraw with a grade of “W”.</td>
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<td>March 15 – 21</td>
<td>Spring Break—no classes.</td>
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<td>Thursday April 9</td>
<td>Mid-term Exam 4, possible date.</td>
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<tr>
<td>Thursday April 16</td>
<td>Mid-term Exam 4, possible date.</td>
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<tr>
<td>Wednesday April 22</td>
<td>Last day of classes.</td>
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<tr>
<td>Thursday April 23</td>
<td>Reading Day/Storm makeup day, if needed.</td>
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<tr>
<td>Saturday April 25, 4–7 pm</td>
<td>Final Exam if using the TR schedule.</td>
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<tr>
<td>Wednesday April 29, 4–7 pm</td>
<td>Final Exam if using the MWF schedule.</td>
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<tr>
<td>Monday May 4</td>
<td>Grades available on MyCharleston by 5pm.</td>
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