

**MATH 232 – CALCULUS IV - 3 credits**  
**TR 8:30 – 9:45 a.m.**

**INSTRUCTOR:** Jean Okumura  
**OFFICE:** Mana’opono 112A  
**OFFICE HOURS:** WF 11:30 a.m. – 12:30 p.m.  
TR 10:00 a.m. – 11:30 a.m.  
Other Hours by Appointment  
**TELEPHONE:** 236-9282  
**FAX NUMBER:** 247-5362 Attention: Jean Okumura  
**EMAIL ADDRESS:** [jokumura@hawaii.edu](mailto:jokumura@hawaii.edu)  
**EFFECTIVE DATE:** Spring 2014

**MyMathLab (MML) Course ID:** okumura21334

### **Windward Community College Mission Statement**

*Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O‘ahu’s Ko‘olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.*

### **Catalog Description**

Math 232 is the fourth course in the calculus sequence. Topics include multiple integrals, line integrals, Green’s Theorem, surface integrals, Stokes’ Theorem, Gauss’ Theorem, and differential equations.

**PREREQUISITES:** Grade of "C" or better in Math 231 or equivalent, or consent of instructor.

### **Suggested Basic Skills**

Good study skills and habits; Competency with Calculus I, II, & III

### **DISABILITIES ACCOMMODATION STATEMENT**

*If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, [lemke@hawaii.edu](mailto:lemke@hawaii.edu), or you may stop by Hale ‘Akoakoa 213 for more information.*

**Learning Resources and Materials**

Required Texts: Multivariable Calculus by Briggs & Cochran

Note: The full textbook Calculus by Briggs & Cochran may be used instead of the required text. The required text is a subset of the full textbook.

Required Material: MyMathLab (MML) access code

MML Math 232 Course ID: okumura21334

Required Technology Tool: TI-83, TI-83+, TI-84, or TI-84+ calculator.

MATH LAB: La`akea 226 – free drop-in tutoring

THE TESTING CENTER (TTC): La`akea 228 – phone number 235-7498

UH Manoa Online Learning Academy: <http://manoa.hawaii.edu/ola/>

Free online tutorial assistance M – F: 9 am to 10 pm and Sundays from 5 to 10 pm.

Brainfuse: <http://windward.hawaii.edu/Brainfuse/>

Free online tutorial assistance accessed via the MyUH portal.

**STUDENT LEARNING OUTCOMES**

These student learning outcomes will be assessed via course activities (homework, in-class work, and/or additional assignments) and via tests or quizzes.

1. Compute multiple integrals in various coordinate systems.
2. Use multiple integrals or vector calculus techniques to solve application and/or theoretical problems.
3. Solve basic differential equations and applications.
4. Utilize precise mathematical language and symbols and effectively communicate in written and/or oral form.

**Course Goals**

1. To acquire skills with various analytical problem-solving strategies.
2. To gain competency with the theoretical and practical foundations of differential and integral calculus.
3. To learn about multiple integrals in various coordinate systems and in applications, Green's Theorem, Gauss' Theorem, and Stokes' Theorem, line integrals, surface integral and basic differential equations.
4. To inculcate the relevance of calculus through applications.
5. To prepare the student for endeavors which have Calculus IV as a prerequisite.

**Activities Required at Scheduled Times Other Than Class Times**

Homework; possibly quizzes or exams; consultation with instructor.

It is expected that students spend, at the minimum, 9 hours per week outside of class time studying and doing homework and readings for this class.

**Responsibilities of Students**

Success in this course will be enhanced by:

1. A positive, inquiring attitude toward mathematics;
2. Setting aside adequate time for studying, working on problems, and careful cogitation of the material;
3. Reading the text carefully and making use of other learning materials whenever necessary;
4. Seeking assistance from the instructor and the Math Lab whenever necessary;
5. Regularly attending class and, notifying the instructor of an absence and responsibly obtaining and completing assignments by the designated date.

**Email and Laulima Website**

You are responsible for checking your UH email regularly for important announcements. You are also expected to check the Math 232 course homepage at the Laulima website for important resources for the course.

## Academic Honesty

All quizzes and exams are **closed books and notes and must be done by your individual effort unless otherwise indicated by the instructor**. You may not consult with any classmates while taking quizzes or exams. You are not allowed to tell a friend the type of questions on the quiz or exam, the answers, or help a classmate in any way (e.g. by explaining how to solve the problem). This would fall under the guidelines of academic integrity and any evidence of cheating will result in a score of 0 for all parties involved. Also keep in mind that we are assessing your knowledge and understanding of the concepts and strategies – attempting to find the answers online or through other sources is not in the spirit of academic honesty. An “F” will be assigned to students involved in **cheating** and the situation will be reported to the Dean and/or Vice-Chancellor.

Graded assignments that apply to the course activities portion of your grade may be discussed with your classmates and you may seek guidance from the instructor, the Math Lab tutors, or the Trio tutors (if you are a Trio client), however, the write up of the solution for each problem must be done on **your individual effort** unless otherwise specified by the instructor. Graded assignments are **not group assignments** where all members of the group write the same responses for each problem. Any evidence of plagiarism will result in a score of 0 for all parties involved. If plagiarism persists, then an “F” will be assigned to the students involved in **plagiarism** and the situation will be reported to the Dean and/or Vice Chancellor.

All students are required to follow the Student Conduct Code described at <http://www.hawaii.edu/apis/ep/e7/e7208.pdf>.

## Disruptive Behavior

**Disruptive Behavior** leads to a loss of learning time. Examples are activated beepers and cell phones, texting messages, making offensive remarks, packing books before class is over, making noise, leaving class early, coming to class late, sleeping in class, prolonged chattering, reading other materials not relevant to this class, etc. If a student takes part in disruptive behavior, the instructor reserves the right to exclude the student immediately from the class meeting, and will be marked absent.

**Remember that class time is learning time. Also, be respectful of others and their learning time.**

## MyMathLab (MML)

This course will utilize MML for some assignments. The new textbook purchased from the WCC bookstore is packaged with MML. If you purchase the textbook from elsewhere, be sure that it comes with the MML access code.

The MML access code also provides an e-book so if you prefer, you may purchase the MML access code online for \$93.50.

## Course Tasks and Grading Information

Grades for this course are based on the following course tasks:

3 exams @ 100 pts	300 pts	(52% of possible pts)
Course Activities (Total percent earned)(150) = pts for CA	150 pts	(26% of possible pts)
Final Exam	<u>125 pts</u>	(22% of possible pts)
Total points	575 pts	

Course activities may include but are not limited to:

Textbook Homework Problems	In-Class or Other Problems
Journal entries (writing assignments)	MML Homework
Reports or Presentations	Guided Projects

**There are no make-up opportunities for missed or late assignments, in-class activities, or other activities that are graded for the course activities portion of your grade.** However, you will have 5 one business day late graces (LG) for written homework for course activities. There will also be a few opportunities to earn extra credit points for the course activities portion of your grade. The total percent correct will be multiplied by 150 (rounded to the nearest whole number) to obtain your score for the course activities portion of your grade. The maximum score possible for the course activities portion of your grade is 150 points.

Each letter grade for the course will be assigned according to the level of achievement as provided in the table below:

<u>Letter Grade</u>	<u>Definition</u>
A	90% - 100% of the cumulative points possible
B	80% - 89% of the cumulative points possible
C	70% - 79% of the cumulative points possible
D	60% - 69% of the cumulative points possible
F	Less than 60% of the cumulative points possible
Cr	70% - 100% of the cumulative points possible
NC	Less than 70% of the cumulative points possible
W	Official Withdrawal
I	Incomplete - given when a student has failed to complete a SMALL part of the course due to circumstances beyond his/her control.

Note: Cr/NC grades require written instructor consent. Students must apply for Cr/NC grading option at the Admissions Office by the posted deadline. If a student does not apply for Cr/NC grading option at the Admissions Office by the required deadline and if s/he does not withdraw, a letter grade (A, B, C, D, F) will be assigned for the course.

Note: W grade is given only when the student officially withdraws from the course at the Admissions Office by the posted deadline.

**Additional Information**

## 1. ABSENCES:

It is your responsibility to attend class. If you are absent, borrow a classmate's notes and copy them for the day you were absent. You are responsible for those topics and examples discussed on the day of your absence. Furthermore, you are responsible for any important announcements or homework assignments given during the class you missed. Frequent absences can negatively affect your grade.

## 2. MAKE-UP POLICY:

There are no make-up opportunities for any quizzes, graded assignments, or graded in-class activities that you miss due to absences or tardiness. A few extra credit opportunities are available for the course activities portion of your grade. You will have 5 one business day late graces (LG) for the written homework for course activities.

If you are unable to attend class on an exam day, discuss your situation with the instructor as soon as possible before the exam day. It may be possible for you to take the exam earlier than the specified day/time. IF YOU UNEXPECTEDLY MUST BE ABSENT ON AN EXAM DAY, NOTIFY THE INSTRUCTOR BY THE END OF THAT EXAM DAY (By 6 pm). YOU CAN LEAVE A VOICE MAIL MESSAGE FOR THE INSTRUCTOR (236-9282). BE SURE TO STATE THE REASON FOR THE ABSENCE. If no notification is received by the day of the exam or if the reason is not justified, then you will receive a 0 for that exam and no make-up will be allowed. If notification is received and the reason is justified then a make-up exam will be scheduled. You must take the make-up exam as soon as possible after you return to school. The instructor has the right to request documentation of the student's absence and determine if the reason for the absence is justified. FOR EACH STUDENT, NOT MORE THAN ONE MAKE-UP EXAM MAY BE TAKEN.

## 3. There are NO RETESTS for this course.

## 4. FINAL EXAM: The final exam is cumulative.

## 5. CALCULATOR:

A TI-83, TI-83+, or TI-84+ calculator is required for this class. The calculator is required for some parts of the exams and assignments and not allowed for other parts. The TI-89 and TI-NSPIRE calculators are not allowed for exams.

## 6. CELL PHONES:

Please put your cell phone on silent mode or turn it off prior to the start of the class so that it does not disturb the class session. Put your cell phone away during class time. No TEXTING is allowed during class time.

**Additional Information (continued)**

## 7. HOMEWORK:

Read the sections to be covered in a class session prior to that class session. As you read each section, write down terminology or symbols and its definition and properties/rules that are important and that are not already listed in the in-class notes. This will become helpful additional notes. Try to do as much of the recommended problems as possible. Also look at the in-class examples and try to do as much of those problems as possible.

After the class lecture/discussion on a section, you should complete some recommended problems from those sections. Those problems and concepts that you still do not understand or that you need further clarification on should be asked about in the class meeting after the section is discussed in class. Because there is very little class time, you will probably need to seek assistance from the instructor or from the Math Lab if not all your questions on problems are handled during class time or if you are still having difficulties. Complete, review, and analyze all of the recommended problems to help you learn and get a better understanding of the material. You may need to do more than the recommended problems to become comfortable with the concepts and skills.

After the section(s) are covered in class, graded work that count towards the course activities (CA) portion of your grade will be given with a due date. Some homework will be given in MML and some will be written homework. Course activities may also include other activities such as journals (writing assignments), oral presentations, etc.

Any item collected for grading purposes for the course activities portion of your grade are due at the BEGINNING OF CLASS unless otherwise specified by the instructor and WILL NOT RECEIVE ANY POINTS IF TURNED IN LATE. However, you will have 5 one day late graces (LG) for written homework for course activities. You may turn in your graded work before the due date and/or time without losing points. There will be opportunities to earn a few extra credit points towards your course activities portion of your grade.

Although there are usually no points associated with recommended problems that are problems from the text or on handouts that have answers provided as a way to practice the strategies learned or MML study plan problems, it is expected that students do recommended problems to assist them in their learning. Not doing recommended problems and/or waiting to work on recommended problems until right before an exam generally results in poor exam results and a lack of success in this course.

Be sure to review and analyze your graded course activities after it is returned to you. This will help you to get a better understanding of the material and concepts.

**Additional Information (continued)**

## 8. HELP:

Your instructor is your primary human resource for help when you are lost or having trouble. Seek help immediately if you are encountering problems even after reading and re-reading the text section(s) and listening to/thinking about the discussion in class on that section(s). See the instructor during office hours, make an appointment, email or call. Don't wait too long to get help!! The Math Lab is also available for drop-in assistance on the course material.

If a crisis comes up that interferes with the class, communicate with your instructor in a timely manner. Too many students wait until it is too late to inform their instructor about their crisis and that reduces the options that students may have to complete the course with a grade of C or better.

## 9. GRADING ON HOMEWORK, QUIZZES, OR EXAMS:

To receive full credit for problems done on exams, on quizzes, or for graded homework, you must show sufficient work in a clear, logical, mathematically precise and organized manner. This is to assess student learning outcome #4. It also helps me determine where your error is (hence, you might be able to obtain partial credit) and if you are logically applying the mathematical tools learned to solve the given problem. Your work must be neat and organized. "Messy" and/or disorganized work will not be accepted.

## 10. DON'T PROCRASTINATE

Mathematics is not a subject that you can consistently be successful in by "cramming" a day or two before the test. By "cramming" you don't develop proficiency in doing the problems, knowledge of what to do on a particular problem and long-term understanding of the process. Also, if you procrastinate, you may fall so hopelessly behind that it becomes impossible to catch up. It requires constant work to keep on top of the material.

## 11. N Grade

The N grade indicates that the student worked conscientiously, attended regularly, finished all work, fulfilled course responsibilities, and has made measurable progress. However, either the student has not achieved the minimal student learning objectives and is not yet prepared to succeed at the next level, or the student has made consistent progress in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies."

The N grade is an optional grade. Instructors do not have to give an N grade.



**TENTATIVE SCHEDULE - MATH 232**  
**SPRING 2014 – OKUMURA**  
**TTU 8:30 am – 9:45 am**

	TUESDAY		THURSDAY
JAN 14	Orientation, Review of Integrals	JAN 16	13.1 <i>Last Day for 100% Refund – Fri., 1/17</i>
JAN 21	13.2	JAN 23	13.3
JAN 28	13.3, 13.4	JAN 30	13.4, 13.5 <i>Erase and 50% Refund Deadline – Mon., 2/3</i>
FEB 4	13.5	FEB 06	13.6
FEB 11	Review for Exam 1	FEB 13	<b>EXAM 1 !!! - Sect. 13.1 – 13.5</b>
FEB 18	13.6, 13.7	FEB 20	13.7
FEB 25	14.1	FEB 27	14.2
MAR 4	14.2	MAR 06	14.3
MAR 11	14.4	MAR 13	14.5
MAR 18	Review for Exam 2	MAR 20	<b>EXAM 2 !!!</b> <b>Sect. 13.6, 13.7, 14.1 – 14.4</b> <i>Withdrawal, CR/NC Deadline is Thurs., 3/20</i>
MAR 25	NO CLASSES: Spring Recess	MAR 27	NO CLASSES: Spring Recess
MAR 31	14.6	APR 03	14.6, 14.7
APR 08	14.7	APR 10	14.8
APR 15	14.8, Differential Equations	APR 17	Differential Equations – First Order
APR 22	Review for Exam 3	APR 24	<b>EXAM 3 !!! - Sect. 14.5 – 14.8,</b> <b>Differential Equ. Up to 1st order</b>
APR 29	Differential Equations Second Order	MAY 01	Differential Equations Second Order
MAY 06	Final Exam Review	MAY 08	No Class Study for Final Exam Review
MAY 13	No Class Study for Final Exam Review	MAY 15	<b>FINAL EXAM!!!</b> <b>8:30 am-10:30 am</b>

GRADING INFORMATION  
MATH 232 - OKUMURA

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Total Possible Points	575 pts	

Course activities may include but are not limited to:

Textbook Homework Problems	In-Class or Other Problems
Journals (writing assignments)	MML Problems
Reports or Presentations	Guided Projects

**COURSE ACTIVITIES THAT ARE TURNED IN LATE WILL NOT RECEIVE ANY POINTS (no matter what the reason).** All assignments are due at the **BEGINNING** of class on the due date unless otherwise specified by the instructor. The "beginning of class" means that assignments must be given to the instructor by 5 minutes after the start of class. For example, if the class meets 1:30 - 2:20 then, the assignment must be turned in by 1:35. The clock of the classroom is the official time clock. Graded assignments turned in after the "beginning of class" is late.

**There are no make-up opportunities for missed assignments, in-class activities, or other activities that are graded for the course activities portion of your grade.** However, you will have 5 one business day late graces (LG). There also will be a few opportunities to earn extra credit points for the course activities portion of your grade. The total percent correct will be multiplied by a 150 (rounded to the nearest whole number) to obtain your score for the course activities portion of your grade. The maximum score for the course activities portion of your grade is 150 points.

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