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## Term Information

Effective Term Spring 2023

## General Information

Course Bulletin Listing/Subject Area Mathematics  
Fiscal Unit/Academic Org Mathematics - D0671  
College/Academic Group Arts and Sciences  
Level/Career Undergraduate  
Course Number/Catalog 2175  
Course Title Calculus III Bridge Course  
Transcript Abbreviation Calc 3 Bridge  
Course Description Calculus Bridge Course is a 1-hr course designed to cover topics in the Math 1172-2153 sequence that are missing if a student has taken the Math 1172-2173 sequence. The goal of this course is that 1172-2173-Bridge will satisfy all of requirements of 1172-2153 for each of the Math major tracks and any prerequisites.  
Semester Credit Hours/Units Fixed: 1

## Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week, 6 Week  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? No  
Grading Basis Letter Grade  
Repeatable No  
Course Components Lecture  
Grade Roster Component Lecture  
Credit Available by Exam No  
Admission Condition Course No  
Off Campus Never  
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark, Wooster

## Prerequisites and Exclusions

Prerequisites/Corequisites A C- or better in 2173 or permission of department.  
Exclusions No credit after 2153, 2182H or higher.  
Electronically Enforced Yes

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code 27.0101  
Subsidy Level Baccalaureate Course  
Intended Rank Freshman, Sophomore

## Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

## Course Details

### Course goals or learning objectives/outcomes

- Students understand surface area
- Students understand theory and application of separable differential equations.
- Students understand normal vectors and tangent planes.
- Students understand and are able to apply key results involving line and surface integrals.

### Content Topic List

- Surface Area
- Alternating series.
- Differential equations
- Curvature
- Tangent plans and linear approximations
- Line integrals
- Surface integrals

### Sought Concurrence

No

## Attachments

- 2175\_calculus\_3\_bridge.docx: Syllabus

*(Syllabus. Owner: Husen, William J)*

## Comments

## Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Husen, William J	08/29/2022 02:02 PM	Submitted for Approval
Approved	Husen, William J	08/29/2022 02:02 PM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	09/14/2022 11:49 AM	College Approval
Pending Approval	Cody, Emily Kathryn Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	09/14/2022 11:49 AM	ASCCAO Approval

## Calculus III Bridge Course

### Math 2175

**Rationale:** *This course serves as a way for students to move (bridge) from the Math 1151-1172-2173 sequence of courses to the equivalent of Math 1151-1172-2153 by providing material from Math 2153 that is missing in Math 2173. This will allow students to complete a math minor or major without having to redo the large portion of Math 2153 that is contained in Math 2173.*

**Format:** Lecture

**Credit Hours:** 1

**Prerequisites:** A grade of C- or above in Math 2173

**Exclusions:** No credit after Math 2153, Math 2182H or higher

**Course description:** Calculus Bridge Course is a 1 credit hour course designed to cover topics in the Math 1172-2153 sequence that are missing if a student has taken the Math 1172-2173 sequence. The goal of this course is that 1172-2173-Bridge will satisfy all of requirements of 1172-2153 for each of the Math major tracks and any prerequisites.

**Course learning outcomes:** By the end of this course, students should successfully be able to:

- Understand and apply results involving surface area
- Understand and apply results involving differential equations
- Understand curvature, tangent planes and linear approximations
- Understand line and surface integrals and their key results

**Course materials:** Ximera online open-source textbook.

All course materials will be posted to the Carmen page

#### Course Requirements and Grade Weights:

**Ximera Homework (30%):** Students will have regularly assigned homework from the Ximera textbook. This will consist of computational problems along with conceptual questions. This homework is expected to take approximately 2 hours per week.

**Quizzes and Explanations (10%):** Students will take regular in-class quizzes to test current knowledge and reinforce the ideas learned from homework. Explanations are question which require additional communication of the mathematics learned.

**Midterm Exams (30%):** There will be two midterm exams given during the course. These will cover course content knowledge as well as conceptual knowledge.

**Final Exam (30%):** There will be a cumulative final exam for this course.

**Course Grade:** Student grades will be based on the performance on course required activities and weighted as noted and assigned according to the university standard grading scale.

**Weekly Topics:**

Week	Topic	Assessment
1	Surface Area	Ximera Homework 1
2	Alternating Series	Ximera Homework 2 – Quiz 1
3	Ideas of Differential Equations	Ximera Homework 3
4	Directional Fields and Euler’s Method	Ximera Homework 4 – Quiz 2
5	Separable Differential Equations	Ximera Homework 5
6	Midterm 1	Review
7	Curvature and Normal Vectors	Ximera Homework 6
8	Tangent Plans and Linear Approximations	Ximera Homework 7 – Quiz 3
9	Integrals	Ximera Homework 8
10	Midterm 2	Review
11	Green’s Theorem	Ximera Homework 9
12	Divergence and Curl	Ximera Homework 10 – Quiz 4
13	Surface Integrals	Ximera Homework 11
14	Stoke’s Theorem and Divergence Theorem	Ximera Homework 12 – Quiz 5

**Ohio State’s academic integrity policy:** It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

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**Statement on title IX:** Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at [titleix@osu.edu](mailto:titleix@osu.edu)

**Accessibility accommodations for students with disabilities: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.**

**Your mental health!** As a student you may experience a range of issues that can cause barriers to learning such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu) or calling 614- 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)