Curriculum Development Form — Modify an Existing Course

Course Designator, Number, Title and Number of Credits (i.e. ACCT 1800, Business Law, 3 cr)
Math 115, Concepts in Mathematics, 4 cr

Date of Proposal: 2/12/2015  Author: Ariene Eliason
Course Contact: Diann Marten  Grading Method: □ Grade □ Pass/Fail
Scheduling: ☑ Fall ☑ Spring ☑ Summer ☐ Alternate Years ☐ Variable ☐ On Demand

Is this proposed course a Liberal Arts and Sciences course? ☑ Yes ☐ No
If yes, which MnTC area(s) will it fulfill (http://mntransfer.org)?

☐ 1  ☐ 2  ☐ 3  ☑ 4  ☐ 5  ☐ 6  ☐ 7  ☐ 8  ☐ 9  ☐ 10

The course is being: ☑ Modified ☐ Deleted (complete Intention Form and obtain signatures)
Describe the modification and the rationale:

The prerequisites are being clarified to improve scheduling.

Is this course a requirement/elective for a specific program or programs? ☑ Yes ☐ No
If yes, which program(s)? — DARS search

What impact will this modified course have on other program(s)?
None

Attach additional paperwork if necessary

As Faculty Developer, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):
Prior to Preparing Documentation
☑ Initiation — idea was submitted to Department Chair(s) and Academic Dean/Director for discussion and support
☑ Completed Intention Form
Continue the Curriculum Development Process
☑ COPY of existing CCO was used to make changes
☑ Double-checked:
  * concise 2-3 sentence course description
  * course name
  * lecture/lab credits and hour breakdown
  * course prefix and number
  * prerequisites
  * MnTC goal area — LAS courses
☑ Completed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)
☑ Verified measurable course competencies and learning objectives
☑ Considered potential opportunities and impacts of the change on other programs/departments — DARS Search
☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example
☑ Proofread documentation for grammatical and typographical errors

Ariene Eliason  Date: Feb. 14, 2015
Faculty Developer Signature

As Primary Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):
☑ Documentation through email and department meetings made available for other faculty and programs to provide feedback, includes MnTC Goal Area Cross-walk Template(s)
☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example
☑ Proofread documentation for grammatical and typographical errors
☐ I support this course  ☐ I do not support this course — please provide reason(s):

Diann Marten  Date: 2/17/15
Primary Department Chair Signature

Modify an Existing Course Form — 12/9/14 — Page 1
For LAS (MnTC courses) — As a LAS Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ LAS course (specifically MnTC courses), documentation through email and department meetings made available for other faculty and programs to provide feedback, includes MnTC Goal Area Cross-walk Template(s)

☑ I support this course  ☐ I do not support this course — please provide reason(s):

[Signature] Kurt Osterhau 2/18/15

LAS Department Chair Signature  Date

☑ I support this course  ☐ I do not support this course — please provide reason(s):

[Signature] Allen Hood 2/18/15

LAS Department Chair Signature  Date

☑ I support this course  ☐ I do not support this course — please provide reason(s):

[Signature] [Signature] 3/2/15

LAS Department Chair Signature  Date

If all 4 LAS Department Chairs do not support the modified course proposal, faculty developer can elevate the proposal to AASC for resolution.

As Academic Dean/Director, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ Identified potential opportunities and impacts of the change on other programs/departments — DARS search
☐ Reviewed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)
☐ MnTC Goal Area is appropriate based on MnSCU guidelines — Transfer Specialist consulted
☐ Verified credentials for faculty teaching the course
☐ Addressed the need for Class Maximum Change Request form
☑ No change in class maximum OR
☐ Change in class maximum — Class Maximum Change Request form completed with all necessary signatures

☑ I support this course  ☐ I do not support this course — please provide reason(s):

[Signature] [Signature] 2/18/15

Academic Dean/Director Signature  Date

If Academic Dean/Director does not support the modified course proposal, faculty developer can elevate the proposal to AASC for resolution.

Upload this signed form as a PDF to WIDS Shared Document folder — Curriculum Committee.

Following Curriculum Committee support, this form is completed with final signatures.

[Signature] 4/3/2015

Curriculum Committee Chair Signature  Date

[Signature] 4/14/15

Vice President of Student and Academic Affairs Signature  Date
MnTC Goal Area 4 Cross-Walk

Course: Concepts of Mathematics, Math 115  
Goal Area: 4 – Mathematics/Logical Reasoning

**Goal:** To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. Students will learn to apply mathematics, logic, and/or statistics to help them make decisions in their lives and careers. Minnesota's public higher education systems have agreed that developmental mathematics includes the first three years of a high school mathematics sequence through intermediate algebra.

**Students will be able to:**
- Illustrate historical and contemporary applications of mathematics/logical systems.
- Clearly express mathematical/logical ideas in writing.
- Explain what constitutes a valid mathematical/logical argument (proof).
- Apply higher-order problem-solving and/or modeling strategies.

<table>
<thead>
<tr>
<th>MnTC Competency</th>
<th>Course Competencies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies</td>
<td>Explain how to approach a mathematical problem</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems.</td>
<td>Describe an axiomatic system</td>
</tr>
<tr>
<td>Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Explain the key components of deductive reasoning</td>
</tr>
<tr>
<td>Explain what constitutes a valid mathematical/logical argument (proof)</td>
<td>Derive additional logical operators</td>
</tr>
<tr>
<td>Explain what constitutes a valid mathematical/logical argument (proof)</td>
<td>Apply some elementary rules of logic</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Describe the two essential approaches to logical proof</td>
</tr>
<tr>
<td>Explain what constitutes a valid mathematical/logical argument (proof). Illustrate historical and contemporary applications of mathematics/logical systems.</td>
<td>Express numbers in different numeration systems</td>
</tr>
<tr>
<td>Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing.</td>
<td>Explain the properties of natural numbers</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems.</td>
<td>Deduce properties of prime and composite numbers</td>
</tr>
</tbody>
</table>

MnTC – Goal Area 4 Template – 11/26/2014
<table>
<thead>
<tr>
<th>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing.</th>
<th>Explain the properties of integers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing.</td>
<td>Explain the properties of rational numbers</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing.</td>
<td>Describe irrational numbers</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing.</td>
<td>Explain the properties of real numbers</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Manipulate simple polynomial expressions</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Solve simple equations</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Solve linear inequalities</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Contrast the different geometries</td>
</tr>
<tr>
<td>Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Review properties of polygons and angles</td>
</tr>
<tr>
<td>Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Review certain properties of triangles</td>
</tr>
<tr>
<td>Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof). Illustrate historical and contemporary applications of mathematics/logical systems.</td>
<td>Review properties of polygons and angles</td>
</tr>
<tr>
<td>Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof). Illustrate historical and contemporary applications of mathematics/logical systems.</td>
<td>Review certain properties of triangles</td>
</tr>
<tr>
<td>Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof). Illustrate historical and contemporary applications of mathematics/logical systems.</td>
<td>Measure the distances of inaccessible objects using plane geometry</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Visualize a function's behavior by its graph</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Graph linear inequalities in one and two variables</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies. Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing.</td>
<td>Apply certain sequences to real-world problems</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies. Illustrate historical and contemporary applications of mathematics/logical systems.</td>
<td>Geometrically interpret statements concerning sets</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies. Clearly express mathematical/logical ideas in writing. Illustrate historical and contemporary applications of mathematics/logical systems.</td>
<td>Solve elementary probability problems</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies. Clearly express mathematical/logical ideas in writing.</td>
<td>Explain the cultural significance of mathematics</td>
</tr>
</tbody>
</table>
Curriculum Development Form — Modify an Existing Course

Course Designator, Number, Title and Number of Credits (i.e. ACCT 1800, Business Law, 3 cr)

Math 120, College Algebra, 4 cr

Date of Proposal: 2/12/2015

Author: Arlene Ellason

Course Contact: Diann Marten

Grading Method: □ Grade □ Pass/Fail

Scheduling: ☑ Fall ☑ Spring ☑ Summer □ Alternate Years □ Variable □ On Demand

Is this proposed course a Liberal Arts and Sciences course? ☑ Yes □ No

If yes, which MnTC area(s) will it fulfill (http://mentransfer.org)?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

The course is being: ☑ Modified □ Deleted (complete Intention Form and obtain signatures)

Describe the modification and the rationale:

The prerequisites are being clarified to improve scheduling.

Is this course a requirement/elective for a specific program or programs? ☑ Yes □ No

If yes, which program(s)? — DARS search

What impact will this modified course have on other program(s)?

None

Attach additional paperwork if necessary

As Faculty Developer, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

Prior to Preparing Documentation

☑ Initiation — idea was submitted to Department Chair(s) and Academic Dean/Director for discussion and support

☑ Completed Intention Form

Continue the Curriculum Development Process

☑ COPY of existing CCO was used to make changes

☑ Double-checked:
  • concise 2-3 sentence course description
  • course name
  • lecture/lab credits and hour breakdown
  • course prefix and number
  • prerequisites
  • MnTC goal area — LAS courses

☑ Completed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)

☑ Verified measurable course competencies and learning objectives

☑ Considered potential opportunities and impacts of the change on other programs/departments — DARS Search

☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example

☑ Proofread documentation for grammatical and typographical errors

Arlene Ellason

Date: Feb 14, 2015

As Primary Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☑ Documentation through email and department meetings made available for other faculty and programs to provide feedback, includes MnTC Goal Area Cross-walk Template(s)

☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example

☑ Proofread documentation for grammatical and typographical errors

☑ I support this course □ I do not support this course — please provide reason(s):

Diann Marten

Date: 2/7/15

Modify an Existing Course Form — 12/9/14 — Page 1
For LAS (MnTC courses) — As a LAS Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ I support this course  □ I do not support this course — please provide reason(s):

[Signature]  
Kurt Drager  
2/18/15  
LAS Department Chair Signature

☐ I support this course  □ I do not support this course — please provide reason(s):

[Signature]  
[Signature]  
2/18/15  
LAS Department Chair Signature

☐ I support this course  □ I do not support this course — please provide reason(s):

[Signature]  
[Signature]  
3/2/15  
LAS Department Chair Signature

If all 4 LAS Department Chairs do not support the modified course proposal, faculty developer can elevate the proposal to AASC for resolution.

As Academic Dean/Director, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ Identified potential opportunities and impacts of the change on other programs/departments — DARS search
☐ Reviewed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)
☐ MnTC Goal Area is appropriate based on MnSCU guidelines — Transfer Specialist consulted
☐ Verified credentials for faculty teaching the course
☐ Addressed the need for Class Maximum Change Request form
☐ No change in class maximum OR
☐ Change in class maximum — Class Maximum Change Request form completed with all necessary signatures

☐ I support this course  □ I do not support this course — please provide reason(s):

[Signature]  
[Signature]  
2/18/15  
Academic Dean/Director Signature

If Academic Dean/Director does not support the modified course proposal, faculty developer can elevate the proposal to AASC for resolution.

Upload this signed form as a PDF to WIDS Shared Document folder — Curriculum Committee.

Following Curriculum Committee support, this form is completed with final signatures.

[Signature]  
4/3/2015  
Date  
Curriculum Committee Chair Signature

[Signature]  
4/14/15  
Date  
Vice President of Student and Academic Affairs Signature

Modify an Existing Course Form — 12/9/14 — Page 2
MnTC Goal Area 4 Cross-Walk

Course: College Algebra, Math 120  
Goal Area: 4 - Mathematics/Logical Reasoning

**Goal:** To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. Students will learn to apply mathematics, logic, and/or statistics to help them make decisions in their lives and careers. Minnesota's public higher education systems have agreed that developmental mathematics includes the first three years of a high school mathematics sequence through intermediate algebra.

**Students will be able to:**
- Illustrate historical and contemporary applications of mathematics/logical systems.
- Clearly express mathematical/logical ideas in writing.
- Explain what constitutes a valid mathematical/logical argument (proof).
- Apply higher-order problem-solving and/or modeling strategies.

<table>
<thead>
<tr>
<th>MnTC Competency</th>
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</table>
| Apply higher-order problem-solving and/or modeling strategies.  
Illustrate historical and contemporary applications of mathematics/logical systems. | Transform polynomial expressions accurately |
| Apply higher-order problem-solving and/or modeling strategies.  
Illustrate historical and contemporary applications of mathematics/logical systems. | Transform other algebraic expressions |
| Explain what constitutes a valid mathematical/logical argument (proof).  
Apply higher-order problem-solving and/or modeling strategies. | Solve linear and related equations |
| Explain what constitutes a valid mathematical/logical argument (proof).  
Apply higher-order problem-solving and/or modeling strategies. | Solve linear and related inequalities |
| Explain what constitutes a valid mathematical/logical argument (proof).  
Apply higher-order problem-solving and/or modeling strategies. | Solve quadratic equations |
| Explain what constitutes a valid mathematical/logical argument (proof).  
Apply higher-order problem-solving and/or modeling strategies.  
Illustrate historical and contemporary applications of mathematics/logical systems. | Solve certain types of higher degree equations and inequalities. |
| Apply higher-order problem-solving and/or modeling strategies.  
Illustrate historical and contemporary applications of mathematics/logical systems. | Graph elementary functions |

MnTC - Goal Area 4 Template - 11/26/2014
<p>| Apply higher-order problem-solving and/or modeling strategies. Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing. | Describe functions in terms of the formal definition |
|———|———|
| Clearly express mathematical/logical ideas in writing. Illustrate historical and contemporary applications of mathematics/logical systems. | Describe the local and global behavior of a given polynomial |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. | Compute the roots of polynomial equations |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. | Specify the behavior of rational functions |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. Clearly express mathematical/logical ideas in writing. | Evaluate expressions containing exponentials |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. Clearly express mathematical/logical ideas in writing. | Evaluate expressions containing logarithms |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. Clearly express mathematical/logical ideas in writing. | Solve equations containing exponentials and logarithms |
| Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies. | Use row operations to solve system of linear equations |
| Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies. | Solve systems of linear inequalities |</p>
<table>
<thead>
<tr>
<th>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof).</th>
<th>Define arithmetic sequences</th>
</tr>
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<tbody>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Define geometric sequences</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing.</td>
<td>Sum an arithmetic series</td>
</tr>
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<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing.</td>
<td>Sum a geometric series</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing.</td>
<td>Compute the number of elements in a subset of a population</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Expand expressions using the Binomial Formula</td>
</tr>
</tbody>
</table>
Curriculum Development Form — Modify an Existing Course

Course Designator, Number, Title and Number of Credits (i.e. ACCT 1800, Business Law, 3 cr)
Math 125, Trigonometry, 3 cr

Date of Proposal: 2/12/2015  Author: Arlene Eliason

Course Contact: Diana Marten
Grading Method: ☐ Grade  ☐ Pass/Fail

Scheduling:  ☐ Fall  ☐ Spring  ☐ Summer  ☐ Alternate Years  ☐ Variable  ☐ On Demand

Is this proposed course a Liberal Arts and Sciences course? ☑ Yes  ☐ No
If yes, which MnTC area(s) will it fulfill (http://mntransfer.org)?
☐ 1  ☐ 2  ☐ 3  ☐ 4  ☐ 5  ☐ 6  ☐ 7  ☐ 8  ☐ 9  ☐ 10

The course is being: ☑ Modified  ☐ Deleted (complete Intention Form and obtain signatures)
Describe the modification and the rationale:
The prerequisites are being clarified to improve scheduling.

Is this course a requirement/elective for a specific program or programs? ☑ Yes  ☐ No
If yes, which program(s)? — DARS search

What impact will this modified course have on other program(s)?
None

Attach additional paperwork if necessary

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  • concise 2-3 sentence course description
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  • course prefix and number
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  • MnTC goal area — LAS courses
☑ Completed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)
☑ Verified measurable course competencies and learning objectives
☑ Considered potential opportunities and impacts of the change on other programs/departments — DARS Search
☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example
☑ Proofread documentation for grammatical and typographical errors

Arlene Eliason  Feb. 14, 2015
Faculty Developer Signature  Date

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☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example
☑ Proofread documentation for grammatical and typographical errors
☑ I support this course  ☐ I do not support this course — please provide reason(s):

Diana Marten  3/17/15
Primary Department Chair Signature  Date
For LAS (MnTC courses) — As a LAS Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ I support this course
☐ I do not support this course — please provide reason(s):

[Signature]
LAS Department Chair Signature
Date

☐ I support this course
☐ I do not support this course — please provide reason(s):

[Signature]
LAS Department Chair Signature
Date

☐ I support this course
☐ I do not support this course — please provide reason(s):

[Signature]
LAS Department Chair Signature
Date

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☐ No change in class maximum OR
☐ Change in class maximum — Class Maximum Change Request form completed with all necessary signatures

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☐ I do not support this course — please provide reason(s):

[Signature]
Academic Dean/Director Signature
Date

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Upload this signed form as a PDF to WIDS Shared Document folder — Curriculum Committee.

Following Curriculum Committee support, this form is completed with final signatures.

[Signature]
Curriculum Committee Chair Signature
Date

[Signature]
Vice President of Student and Academic Affairs Signature
Date

Modify an Existing Course Form — 12/9/14 — Page 2
MnTC Goal Area 4 Cross-Walk

Course: Trigonometry, Math 125  
Goal Area: 4 – Mathematics/Logical Reasoning

Goal: To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. Students will learn to apply mathematics, logic, and/or statistics to help them make decisions in their lives and careers. Minnesota’s public higher education systems have agreed that developmental mathematics includes the first three years of a high school mathematics sequence through intermediate algebra.

**Students will be able to:**
- Illustrate historical and contemporary applications of mathematics/logical systems.
- Clearly express mathematical/logical ideas in writing.
- Explain what constitutes a valid mathematical/logical argument (proof).
- Apply higher-order problem-solving and/or modeling strategies.

<table>
<thead>
<tr>
<th>MnTC Competency</th>
<th>Course Competencies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Review essential concepts from algebra</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Review essential concepts from analytic geometry</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Review transformations applied to graphs of common functions</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Define methods for measurements of angles</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Define the trigonometric functions on domains of sets of real numbers</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Prove basic properties of the trigonometric functions</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Analyze the graphs of the six trigonometric functions</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Deduce properties of the six inverse trigonometric functions</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Explore analytic properties of the trigonometric functions</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Deduce various conversion formulas</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Apply the trigonometric functions to angle, length and area measurement problems</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Model periodic phenomena with the trigonometric functions</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Graph equations specified in polar form</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Apply trigonometry to the complex numbers</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Develop basic vector operations</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Apply vectors to real world situations</td>
</tr>
<tr>
<td>Interpret graphs of exponential functions</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Develop useful properties of exponential functions</td>
</tr>
<tr>
<td>Interpret graphs of logarithmic functions</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Develop useful properties of logarithmic functions</td>
</tr>
</tbody>
</table>
Curriculum Development Form — Modify an Existing Course

Course Designator, Number, Title and Number of Credits (i.e. ACCT 1800, Business Law, 3 cr)
Math 130, Precalculus Mathematics, 4 cr

Date of Proposal: 2/12/2015
Author: Arlene Eliason

Course Contact: Diann Marten
Gradning Method: ☐ Grade ☐ Pass/Fail

Scheduling: ☑ Fall ☑ Spring ☑ Summer ☐ Alternate Years ☐ Variable ☐ On Demand

Is this proposed course a Liberal Arts and Sciences course? ☑ Yes ☐ No
If yes, which MnTC area(s) will it fulfill (http://mntransfer.org)?
☐ 1 ☐ 2 ☐ 3 ☑ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

The course is being: ☑ Modified ☐ Deleted (complete Intention Form and obtain signatures)

Describe the modification and the rationale:
The prerequisites are being clarified to improve scheduling.

Is this course a requirement/elective for a specific program or programs? ☑ Yes ☐ No
If yes, which program(s)? — DARS search

What impact will this modified course have on other program(s)?
None

Attach additional paperwork if necessary

As Faculty Developer, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):
Prior to Preparing Documentation
☑ Initiation — idea was submitted to Department Chair(s) and Academic Dean/Director for discussion and support
☑ Completed Intention Form

Continue the Curriculum Development Process
☑ COPY of existing CCO was used to make changes
☑ Double-checked:
  • concise 2-3 sentence course description
  • course name
  • lecture/lab credits and hour breakdown
  • course prefix and number
  • prerequisites
  • MnTC goal area — LAS courses
☑ Completed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)
☑ Verified measurable course competencies and learning objectives
☑ Considered potential opportunities and impacts of the change on other programs/departments — DARS Search
☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example
☑ Proofread documentation for grammatical and typographical errors

[Signature]
Faculty Developer Signature  Feb. 14, 2015

As Primary Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):
☑ Documentation through email and department meetings made available for other faculty and programs to provide feedback, includes MnTC Goal Area Cross-walk Template(s)
☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example
☑ Proofread documentation for grammatical and typographical errors
☑ I support this course ☐ I do not support this course — please provide reason(s):

[Signature]
Primary Department Chair Signature  2/17/15

Modify an Existing Course Form — 12/9/14 — Page 1
For LAS (MnTC courses) — As a LAS Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ LAS course (specifically MnTC courses), documentation through email and department meetings made available for other faculty and programs to provide feedback, includes MnTC Goal Area Cross-walk Template(s)

☐ I support this course  ☐ I do not support this course — please provide reason(s):

Kurt Ostermann 2/18/15
LAS Department Chair Signature

☐ I support this course  ☐ I do not support this course — please provide reason(s):

Joe Hood 2/18/15
LAS Department Chair Signature

☐ I support this course  ☐ I do not support this course — please provide reason(s):

Date

If all 4 LAS Department Chairs do not support the modified course proposal, faculty developer can elevate the proposal to AASC for resolution.

As Academic Dean/Director, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ Identified potential opportunities and impacts of the change on other programs/departments — DARS search
☐ Reviewed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)
☐ MnTC Goal Area is appropriate based on MnSCU guidelines — Transfer Specialist consulted
☐ Reviewed credentials for faculty teaching the course
☐ Addressed the need for Class Maximum Change Request form
☐ No change in class maximum OR
☐ Change in class maximum — Class Maximum Change Request form completed with all necessary signatures

☐ I support this course  ☐ I do not support this course — please provide reason(s):

Peter Drulis 2/19/15
Academic Dean/Director Signature

If Academic Dean/Director does not support the modified course proposal, faculty developer can elevate the proposal to AASC for resolution.

Upload this signed form as a PDF to WIDS Shared Document folder — Curriculum Committee.

Following Curriculum Committee support, this form is completed with final signatures.

Melody Hays 4/3/2015
Curriculum Committee Chair Signature

Date

Date

Vice President of Student and Academic Affairs Signature
MnTC Goal Area 4 Cross-Walk

Course: Math 130 Pre-Calculus Mathematics  
Goal Area: 4 – Mathematics/Logical Reasoning

**Goal:** To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. Students will learn to apply mathematics, logic, and/or statistics to help them make decisions in their lives and careers. Minnesota’s public higher education systems have agreed that developmental mathematics includes the first three years of a high school mathematics sequence through intermediate algebra.

**Students will be able to:**
- Illustrate historical and contemporary applications of mathematics/logical systems.
- Clearly express mathematical/logical ideas in writing.
- Explain what constitutes a valid mathematical/logical argument (proof).
- Apply higher-order problem-solving and/or modeling strategies.

<table>
<thead>
<tr>
<th>MnTC Competency</th>
<th>Course Competencies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td>Graph elementary functions and relations accurately</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing.</td>
<td>Describe functions in terms of the formal definition</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Describe the local and global behavior of a given polynomial function</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Compute the roots of polynomial equations</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Evaluate expressions containing exponentials</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Evaluate expressions containing logarithms</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Solve equations containing exponentials and logarithms</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Model real-world problems with radian measurements of angles</td>
</tr>
<tr>
<td>Define the six trigonometric functions as real valued functions of a real variable</td>
<td></td>
</tr>
<tr>
<td>Solve right triangle problems using trigonometry</td>
<td></td>
</tr>
<tr>
<td>Graph trigonometric functions</td>
<td></td>
</tr>
<tr>
<td>Derive the six inverse trigonometric functions</td>
<td></td>
</tr>
<tr>
<td>Derive useful results in analytic trigonometry</td>
<td></td>
</tr>
<tr>
<td>Compute the trigonometric functions of related angles</td>
<td></td>
</tr>
<tr>
<td>Apply trigonometry to oblique triangles</td>
<td></td>
</tr>
<tr>
<td>Interpret certain functions in polar coordinate form</td>
<td></td>
</tr>
</tbody>
</table>

*MNTC – Goal Area 4 Template – 11/26/2014*
| Illustrate historical and contemporary applications of mathematics/logical systems. Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies. | Express certain physical phenomena in terms of vectors |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. | Perform operations on complex numbers |
| Illustrate historical and contemporary applications of mathematics/logical systems. | Solve systems of linear equations using row operations or determinants |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. | Solve systems of linear inequalities |
| Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies. | Predict the behavior of well-known sequences |
| Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. | Define arithmetic sequences |
| Illustrate historical and contemporary applications of mathematics/logical systems. Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies. | Define geometric sequences |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. | Sum an arithmetic series |
| Sum an arithmetic series |
| Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. | Expand expressions using the Binomial formula |
Curriculum Development Form — Modify an Existing Course

Course Designator, Number, Title and Number of Credits (i.e. ACCT 1800, Business Law, 3 cr)
Math 131, Calculus I, 4 cr

Date of Proposal: 2/12/2015  Author: Arlene Ellason
Course Contact: Diann Marten  Grading Method: □ Grade □ Pass/Fail
Scheduling: ☑ Fall □ Spring □ Summer □ Alternate Years □ Variable □ On Demand
Is this proposed course a Liberal Arts and Sciences course? ☑ Yes □ No
If yes, which MnTC area(s) will it fulfill (http://mntontransfer.org)?
☑ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10
The course is being: ☑ Modified □ Deleted (complete Intention Form and obtain signatures)
Describe the modification and the rationale:
The prerequisites are being clarified to improve scheduling.
Is this course a requirement/elective for a specific program or programs? ☑ Yes □ No
If yes, which program(s)? — DARS search

What impact will this modified course have on other program(s)?
None

Attach additional paperwork if necessary

As Faculty Developer, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):
Prior to Preparing Documentation
☑ Initiation — idea was submitted to Department Chair(s) and Academic Dean/Director for discussion and support
☑ Completed Intention Form
Continue the Curriculum Development Process
☑ COPY of existing CCO was used to make changes
☑ Double-checked:
  • concise 2-3 sentence course description    • course name    • lecture/lab credits and hour breakdown
  • course prefix and number                  • prerequisites    • MnTC goal area — LAS courses
☑ Completed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)
☑ Verified measurable course competencies and learning objectives
☑ Considered potential opportunities and impacts of the change on other programs/departments — DARS Search
☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example
☑ Proofread documentation for grammatical and typographical errors

Arlene Ellason  Feb. 14, 2015
Faculty Developer Signature  Date

As Primary Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):
☑ Documentation through email and department meetings made available for other faculty and programs to provide feedback, includes MnTC Goal Area Cross-walk Template(s)
☑ Proofread documentation for correct content and proper structure on CCOs based on SCC example
☑ Proofread documentation for grammatical and typographical errors
☑ I support this course □ 1 do not support this course — please provide reason(s):

Diann Marten  2/17/15
Primary Department Chair Signature  Date
For LAS (MnTC courses) — As a LAS Department Chair, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ LAS course (specifically MnTC courses), documentation through email and department meetings made available for other faculty and programs to provide feedback, includes MnTC Goal Area Cross-walk Template(s)

☐ I support this course  ☐ I do not support this course — please provide reason(s):

[Signature] 2/18/15

LAS Department Chair Signature  Date

☐ I support this course  ☐ I do not support this course — please provide reason(s):

[Signature] 2/18/15

LAS Department Chair Signature  Date

☐ I support this course  ☐ I do not support this course — please provide reason(s):

[Signature] 5/2/15

LAS Department Chair Signature  Date

If all 4 LAS Department Chairs do not support the modified course proposal, faculty developer can elevate the proposal to AASC for resolution.

As Academic Dean/Director, by signing this Modify an Existing Course form, the Curriculum Committee is assured of the following (check marks required):

☐ Identified potential opportunities and impacts of the change on other programs/departments — DARS search
☐ Reviewed MnTC Goal Area Cross-walk Template (for LAS MnTC courses only)
☐ MnTC Goal Area is appropriate based on MnSCU guidelines — Transfer Specialist consulted
☐ Verified credentials for faculty teaching the course
☐ Addressed the need for Class Maximum Change Request form
☐ No change in class maximum OR
☐ Change in class maximum — Class Maximum Change Request form completed with all necessary signatures

☐ I support this course  ☐ I do not support this course — please provide reason(s):

[Signature] 2/18/15

Academic Dean/Director Signature  Date

If Academic Dean/Director does not support the modified course proposal, faculty developer can elevate the proposal to AASC for resolution.

Upload this signed form as a PDF to WIDS Shared Document folder — Curriculum Committee.

Following Curriculum Committee support, this form is completed with final signatures.

[Signature] 4/3/2015

Curriculum Committee Chair Signature  Date

[Signature] 4/15/15

Vice President of Student and Academic Affairs Signature  Date

Modify an Existing Course Form — 12/9/14 — Page 2
MnTC Goal Area 4 Cross-Walk

Course: Calculus I
Goal Area: 4 – Mathematics/Logical Reasoning

**Goal:** To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. Students will learn to apply mathematics, logic, and/or statistics to help them make decisions in their lives and careers. Minnesota's public higher education systems have agreed that developmental mathematics includes the first three years of a high school mathematics sequence through intermediate algebra.

**Students will be able to:**
- Illustrate historical and contemporary applications of mathematics/logical systems.
- Clearly express mathematical/logical ideas in writing.
- Explain what constitutes a valid mathematical/logical argument (proof).
- Apply higher-order problem-solving and/or modeling strategies.

<table>
<thead>
<tr>
<th>MnTC Competency</th>
<th>Course Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems</td>
<td>Model real-world phenomena with mathematical functions</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies.</td>
<td></td>
</tr>
<tr>
<td>Clearly express mathematical/logical ideas in writing.</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems</td>
<td>Graph functions in the plane</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies.</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems</td>
<td>Apply properties of common inverse functions</td>
</tr>
<tr>
<td>Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td></td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies.</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems</td>
<td>Define the limit</td>
</tr>
<tr>
<td>Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td></td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies.</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems</td>
<td>Compute limits using proven methods</td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies.</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems</td>
<td>Extend the notion of limit to unbounded or asymptotic behavior</td>
</tr>
<tr>
<td>Explain what constitutes a valid mathematical/logical argument (proof).</td>
<td></td>
</tr>
<tr>
<td>Apply higher-order problem-solving and/or modeling strategies.</td>
<td></td>
</tr>
<tr>
<td>Clearly express mathematical/logical ideas in writing.</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Explain what constitutes a valid mathematical/logical argument (proof). Apply higher-order problem-solving and/or modeling strategies. Clearly express mathematical/logical ideas in writing.</td>
<td>Explain the Intermediate Value Theorem</td>
</tr>
<tr>
<td>Define continuity</td>
<td></td>
</tr>
<tr>
<td>Define derivative</td>
<td></td>
</tr>
<tr>
<td>Compute derivatives of common functions</td>
<td></td>
</tr>
<tr>
<td>Compute derivatives of combinations of functions</td>
<td></td>
</tr>
<tr>
<td>Compute the derivatives of the trigonometric functions</td>
<td></td>
</tr>
<tr>
<td>Apply differentiation to functions expressed in other ways</td>
<td></td>
</tr>
<tr>
<td>Explain the Mean Value Theorem for Derivatives</td>
<td></td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing.</td>
<td>Apply the differential calculus to analytic geometry</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Solve applied problems using differentiation</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing.</td>
<td>Define differential</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Compute antiderivatives of combinations of functions</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing.</td>
<td>Define the definite integral</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Compute the value of a definite integral</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Explain what constitutes a valid mathematical/logical argument (proof). Clearly express mathematical/logical ideas in writing. Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Prove the Fundamental Theorem of the Calculus</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems Apply higher-order problem-solving and/or modeling strategies.</td>
<td>Evaluate definite integrals using substitution</td>
</tr>
<tr>
<td>Illustrate historical and contemporary applications of mathematics/logical systems. Apply higher-order problem-solving and/or modeling strategies. Clearly express mathematical/logical ideas in writing.</td>
<td>Apply definite integrals to area problems</td>
</tr>
</tbody>
</table>