

UMBC UGC Instructions for Change in Existing Course Form (Revised 4/2016)

Course number & title: Enter the current course number and title of the course at the top of the page.

Date submitted: The date that the form will be submitted to the UGC.

Effective date: The semester that the change will be effective, if approved.

Contact information: Provide the contact information of the Chair or UPD of the department housing the course. If the course is not housed in a department or program, then provide the same information for the head of the appropriate academic unit. (See UGC Procedures.) If another faculty member should also be contacted for questions about the request and be notified about UGC actions on the request, include that person's contact information on the second line.

Course information: Provide all of the current information for this course. Check the "change" column for aspects of the course that will be changed by this proposal and provide the specific changes. Unchanged fields may be left blank under the "proposed" column. *Note: all 300- and 400-level courses must have prerequisites or recommended preparation.*

Course number: For cross-listed courses, provide all the numbers for the course.

Transcript title: Limited to 30 characters, including spaces. Leave the current transcript title blank if this is not known.

Recommended Course Preparation: *Please note that all 300 and 400 level courses should have either recommended course preparation(s) or prerequisite(s) and that 100 or 200 level courses may have them.*

Here fill in what previous course(s) a student should have taken to succeed in the course. These recommendations will NOT be enforced by the registration system. Please explain your choices in the "rationale" (discussed below).

Prerequisite: *Please note that all 300 and 400 level courses should have either recommended course preparation(s) or prerequisite(s)* Here fill in course(s) students need to have taken before they enroll in this course. These prerequisites will be enforced through the registration system. Please explain your choices in the "rationale" (discussed below).

NOTE: Please use the words "AND" and "OR", along with parentheses as appropriate, in the lists of prerequisites and recommended preparation so that the requirements specified will be interpreted unambiguously.

NOTE: Unless otherwise indicated, a prerequisite is assumed to be passed with a "D" or better.

of credits: To determine the appropriate number of credits to assign to a course please refer to the [UMBC Credit Hour Policy](#) which articulates the standards for assignment and application of credit hours to all courses and programs of study at UMBC regardless of degree level, teaching and learning formats, and mode of instruction.

Maximum total credits: This should be equal to the number of credits for courses that cannot be repeated for credit. For courses that may be repeated for credit, enter the maximum total number of credits a student can receive from this course. E.g., enter 6 credits for a 3 credit course that may be taken a second time for credit, but not for a third time. Please note that this does NOT refer to how many times a class may be retaken for a higher grade.

Grading method(s): Please review the [grading methods document](#) (this link can be found on the UGC forms page) before selecting a grading option. Please do not select all three grading options by default.

Current catalog description: Provide the course description as it appears in the current undergraduate catalog or since the last UGC-approved change.

Proposed catalog description: If this proposal involves a change in the course description, provide the exact wording of the course description as it will appear in the next undergraduate catalog. Course descriptions should be a) no longer than 75 words, b) stated in complete sentences, and c) avoid reference to specific details that may not always pertain (e.g., dates, events, etc.). Leave blank if this proposal does not change the course description. Course descriptions should not repeat information about prerequisites (which are always listed alongside the course description).

Rationale including a pedagogical justification to any changes in course level: Provide a brief explanation for the need for the proposed changes.

Cross-listed courses: Requests to change cross-listed courses must be accompanied by letters of support via email from all involved department chairs. Proposals for the addition of a cross-listing to an existing course must include as a part of the rationale the specific reason why cross-listing is appropriate. Email from all involved department chairs is also required when cross-listing is removed and when a cross-listed course is discontinued. Please note that Special Topics cannot be cross-listed.

Note: the UGC form is a Microsoft Word form. You should be able to enter most of the information by tabbing through the fields. The document is protected. In the rare case that you need to unprotect the document, use the password 'ugcform'. Beware that you will lose all the data entered in the form's fields if you unlock and lock the document.

UMBC UGC Change in Existing Course: Math 409 Introduction to Mathematical Logic

Date Submitted: 02/21/2019

Proposed Effective Date:

	Name	Email	Phone	Dept
Dept Chair or UPD	Brad Peercy	bpeercy@umbc.edu	5-2436	Math/Stat
Other Contact	Janet Burgee	jburgeon@umbc.edu	5-2401	Math/Stat

COURSE INFORMATION: (please provide all information in the “current” column, and only the information changing in the “proposed” column)

change		current	proposed
<input type="checkbox"/>	Course Number(s)	Math 409	
<input type="checkbox"/>	Formal Title	Introduction to Mathematical Logic	
<input type="checkbox"/>	Transcript Title (≤30c)		
<input type="checkbox"/>	Recommended Course Preparation	none	
<input type="checkbox"/>	Prerequisite NOTE: Unless otherwise indicated, a prerequisite is assumed to be passed with a “D” or better.	You must have completed MATH 301 or CMSC 441 or PHIL 346 with a grade of “C” or better before you can take this course.	
<input type="checkbox"/>	# of Credits Must adhere to the UMBC Credit Hour Policy	3	
<input checked="" type="checkbox"/>	Repeatable?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/>	Max. Total Credits	3	Max. Total Credits: This should be equal to the number of credits for courses that cannot be repeated for credit. For courses that may be repeated for credit, enter the maximum total number of credits a student can receive from this course. E.g., enter 6 credits for a 3 credit course that may be taken a second time for credit, but not for a third time. Please note that this does NOT refer to how many times a class may be retaken for a higher grade.
<input type="checkbox"/>	Grading Method(s)	<input checked="" type="checkbox"/> Reg (A-F) <input type="checkbox"/> Audit <input type="checkbox"/> Pass-Fail	<input type="checkbox"/> Reg (A-F) <input type="checkbox"/> Audit <input type="checkbox"/> Pass-Fail

CURRENT CATALOG DESCRIPTION:

Propositional and first-order logic are developed. The basic framework of formal languages, logical structures and their models is given. Formal deductive systems for logical proofs is set in an algorithmic framework. The completeness and compactness theorems for consistent axiom systems are proven, including the Lowenheim-Skolem theorems. The last half of the course focuses on the work of Goedel. Using Goedel’s numbering of number theoretic formulae and proofs, his theorem asserting the incompleteness (inability to prove all true statements) of any consistent axiomatization of the natural numbers that is recursively given are proven. Related results of Tarski and Rosser, his second incompleteness theorem; the impossibility of Peano arithmetic, if consistent, to prove its own consistency are also proven. Time permitting, the course will introduce Goedel’s proof of the consistency of Cantor’s continuum hypothesis and axiom of choice with the usual axioms of set theory. This course is repeatable for credit.

PROPOSED CATALOG DESCRIPTION (Approximately 75 words in length. Please use full sentences): leave blank if no changes are being proposed to the catalog description. **NOTE:** information about prerequisites should NOT appear in the catalog description.)

Propositional and first-order logic are developed. The basic framework of formal languages, logical structures and their models is given. Formal deductive systems for logical proofs is set in an algorithmic framework. The completeness and compactness theorems for consistent axiom systems are proven, including the Lowenheim-Skolem theorems. The last half of the course focuses on the work of Goedel. Using Goedel’s numbering of number theoretic formulae and proofs, his theorem asserting the incompleteness (inability to prove all true statements) of any consistent axiomatization of the natural numbers that is recursively given are proven. Related results of Tarski and Rosser, his second incompleteness theorem; the impossibility of Peano arithmetic, if consistent, to prove its

own consistency are also proven. Time permitting, the course will introduce Goedel's proof of the consistency of Cantor's continuum hypothesis and axiom of choice with the usual axioms of set theory.

RATIONALE FOR CHANGE:

This course should not be repeatable for credit. Also, students should not be able to enroll multiple times for this course in a semester.