

UNIVERSITY OF BALTIMORE

**DOCUMENT N: COURSE AND PROGRAM DEVELOPMENT COVER SHEET**

See Course and Program Development Policy and Procedures for Instructions

<b>SCHOOL:</b> LAW <input type="checkbox"/> MSB <input type="checkbox"/> YGCLA <input checked="" type="checkbox"/>	<b>Contact Name:</b> Peggy Potthast	<b>Phone:</b> x5342
<b>DEPARTMENT / DIVISION:</b> CLA Dean's Office		
<b>SHORT DESCRIPTION OF PROPOSAL</b> (state name of action item 1-20 and course name, code & number / program affected):		
New course MATH 111 College Algebra		
<b>PROPOSED SEMESTER OF IMPLEMENTATION:</b> Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Year: 2007		

<b>Box 1: TYPE OF ACTION</b>	ADD(NEW) <input checked="" type="checkbox"/>	DEACTIVATE <input type="checkbox"/>	MODIFY <input type="checkbox"/>	OTHER <input type="checkbox"/>
<b>Box 2: LEVEL OF ACTION</b>	Non-Credit <input type="checkbox"/>	Undergraduate <input checked="" type="checkbox"/>	Graduate <input type="checkbox"/>	OTHER <input type="checkbox"/>

<b>Box 3: ACTION ITEM</b> (check appropriate boxes)		DOCUMENTS REQUIRED (see box 4 below)	IMPACT REVIEWS (see box 5 on back)	APPROVAL SEQUENCE (see box 6 on back)
	1. Experimental Course <sup>1</sup>	NOP	a, c, e	AC
	2. Course Title	NO		ABCD
	3. Course Credits	NO		ABCD
	4. Course Number	NO		ABCD
	5. Course Level	NO		ABCD
	6. Pre & Co-Requisite	NO		ABCD
	7. Course Description	NOP		ABCD
x	8. New Course	NOP		ABCDEF
	9. Deactivate a Course	NO		ABCDEF
	10. Program Requirements	NO	b, c, d, e	ABCDEF
	11a. UG Specialization (24 credits or less)	NO	a, b, c, d, e	ABCDEF
	11b. Masters Specialization (12 credits or less)	NO	a, b, c, d, e	ABCDEF
	11c. Doctoral Specialization (18 credits or less)	NO	a, b, e	ABCDEF
	12. Closed Site Program	NOT	e	ABCDHIK
	13. Program Suspension <sup>9</sup>	NO,5	a, e	ABCDEGIK
	14a. Certificate Program (ug/g) exclusively within existing degree program	NO	a, c, e	ABCDEFHIK
	14b. Certificate Program (ug/g) where degree programs do not exist or where courses are selected across degree programs (12 or more credits)	NOQR, 6	a, c, e	ABCDEFHJL
	15. Off-Campus Delivery of Existing Program	NO, 4	a, b, c, e	ABCDHIL
	16a. UG Concentration (exceeds 24 credit hours)	NO, 5	a, c, d, e	ABCDEFHJL
	16b. Masters Concentration (exceeds 12 credit hours)	NO, 5	a, c, d, e	ABCDEFHJL
	16c. Doctoral Concentration (exceeds 18 credit hours)	NO, 5	a, c, d, e	ABCDEFHJL
	17. Program Title Change	NO, 5	a, c, d, e	ABCDEFHJL
	18. Program Termination	NO, 10	d, e	ABCDEFHIK
	19. New Degree Program	NOQR, 3,8	a, c, d, e	ABCDEFHJL
	20. Other	Varies	Varies	Varies

<b>Box 4: DOCUMENTATION (check boxes of documents included)</b>			
x	N. This Cover Sheet	Q. Full 5-page MHEC Proposal	T. Other
x	O. Summary Proposal	R. Financial Tables (MHEC)	
x	P. Course Definition Document	S. Contract	

- Approval of experimental course automatically lapses after two offerings unless permanently approved as a new course.
- Codes: a) Library Services (Langsdale or Law) b) Office of Technology Services c) University Relations d) Admissions
- Letter of Intent is required by USM at least 30 days before a full proposal can be submitted. Letter of Intent requires only the approval of the dean and the provost and is forwarded to USM by the Office of the Provost.
- One-page letter to include: Program title & degree/certificate to be awarded; resources requirements; need and demand; similar programs; method of instruction; and oversight and student services (MHEC requirement)
- One-page letter with description and rationale (MHEC requirement)
- One or two-page document that describes: centrality to mission; market demand; curriculum design; adequacy of faculty resources; and assurance program will be supported with existing resources. (MHEC requirement)
- Learning objectives, assessment strategies; fit with UB strategic plan
- Joint Degree Program or Primary Degree Programs require submission of MOU w/ program proposal. (MHEC requirement)
- Temporary suspension of program to examine future direction; time not to exceed two years. No new students admitted during suspension, but currently enrolled students must be given opportunity to satisfy degree requirements.

**DOCUMENT N: COURSE AND PROGRAM DEVELOPMENT COVER SHEET (Page 2 of 2)**

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<b>SHORT DESCRIPTION OF PROPOSAL</b> (state name of action item 1-20 and course name, code & number / program affected):
New Course – MATH 111 College Algebra

10. Provide:
- evidence that the action is consistent with UB mission and can be implemented within the existing program resources of the institution.
  - proposed date after which no new students will be admitted into the program;
  - accommodation of currently enrolled students in the realization of their degree objectives;
  - treatment of all tenured and non-tenured faculty and other staff in the affected program;
  - reallocation of funds from the budget of the affected program; and
  - existence at other state public institutions of programs to which to redirect students who might have enrolled in the program proposed for abolition.
11. University Council *review* (for a recommendation to the President or back to the Provost) shall be limited to curricular or academic policy issues that may potentially affect the University's mission and strategic planning, or have a significant impact on the generation or allocation of its financial resources.

<b>Box 5: IMPACT REVIEW</b>	<b>SIGNATURES</b> (see procedures for authorized signers)	<b>DATE</b>
a. Library <input type="checkbox"/> No impact <input type="checkbox"/> Impact statement attached	Director or designee:	
b. OTS <input type="checkbox"/> No impact <input type="checkbox"/> Impact statement attached	CIO or designee:	
c. University Relations <input type="checkbox"/> No impact <input type="checkbox"/> Impact statement attached	Director or designee:	
d. Admissions <input type="checkbox"/> No impact <input type="checkbox"/> Impact statement attached	Director or designee:	
e. Records <input type="checkbox"/> No impact <input type="checkbox"/> Impact statement attached	Registrar or designee:	

<b>Box 6: APPROVAL SEQUENCE</b>	<b>APPROVAL SIGNATURES</b>	<b>DATE</b>
A. Department / Division	Chair: <i>Margaret J. Pollack</i>	<i>10/18/06</i>
B. Final faculty review body within each School	Chair: <i>Thomas E. Carney</i>	<i>10/24/06</i>
C. College Dean	Dean: <i>Ray W. Tom</i>	<i>10/26/06</i>
D. Provost and Senior Vice President for Academic Affairs	Provost: <i>W. M. Blendon</i>	<i>11/13/06</i>
E. Curriculum Review Committee (UFS subcommittee)	Chair: <i>Michelle Gilligan</i>	<i>11/7/06</i>
F. University Faculty Senate (UFS option)	Chair:	
G. University Council (see # 11 above)	Chair:	
H. President	President:	
I. Board of Regents – notification only		
J. Board of Regents – approval		
K. MHEC – notification only		
L. MHEC – approval		
M. Middle States Association notification	Required only if the mission of the University is changed by the action	

**DOCUMENT O: SUMMARY PROPOSAL**

See Course and Program Development Policy and Procedures for Instructions

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<b>DEPARTMENT / DIVISION:</b> CLA Dean's Office		
<b>SHORT DESCRIPTION OF PROPOSAL</b> (state action item 1-23 and course name & number or program affected):		
NEW course – MATH 111 College Algebra		
<b>PROPOSED SEMESTER OF IMPLEMENTATION:</b> Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Year: 2007		

O-1: Briefly describe what is being requested:

We are requesting to add a new course, MATH 111 College Algebra, to the curriculum to meet general education needs in mathematics. This is somewhat a revision of MATH 107 and if MATH 111 is approved, MATH 107 will be deleted from the curriculum.

For new courses or changes in existing courses (needed by Registrar)

<b>OLD Title:</b>	<b>Course # / HEGIS Code:</b>	<b>Credits:</b>
<b>NEW Title:</b> College Algebra	<b>Course # / HEGIS Code:</b>	<b>Credits:</b>

O-2: Set forth the rationale for the proposal:

We want to bring the mathematics courses into line with general education mathematics in the State of Maryland as required by MHEC. Several programs (Business, Simulation and Digital Entertainment, Applied Information Technology) will require students to take this course as the MATH general education and may also make it a program requirement at the lower level.

## **Document P: Required Format for Course Definition Document**

Issued by: Wim Wiewel, Provost and Senior Vice President for Academic Affairs  
Effective Date: September 14, 2006  
Reviewed by: University Faculty Senate

Include in your course definition items one through 15 using as much space as needed.

1. Date Prepared: October 15, 2006
2. Prepared by: Peggy Potthast
3. Department: CLA Dean's Office
4. Course Number(s), including HEGIS code(s): MATH 111
5. Course Title: College Algebra
6. Credit Hours: 3
7. Catalog Description (Paragraph should reflect general aims and nature of the course):  
  
THIS COURSE SATISFIES THE 3-CREDIT MATHEMATICS GENERAL EDUCATION REQUIREMENT.  
  
Provides students with more advanced skills required for higher level applications of mathematics. Negative and rational exponents; functions, their properties and operations including inverse functions; linear, quadratic, polynomial, rational, absolute value, exponential, and logarithmic functions are explored. Students develop graphical and algebraic skills and study applications of concepts.
8. Prerequisites: Adequate placement test score or successful completion of MATH 095  
*Intermediate Algebra*
9. Faculty qualified to teach course  
Khadem, Harmeyer, Sykes, Potthast, new faculty to be hired
10. Course Type / Component ( clinical, continuance, discussion, field studies, independent study, laboratory, lecture, seminar, supervision, thesis research, workshop): lecture

11. Suggested approximate class size: 25-30

Content Outline (actual outline will follow that of selected text, but these topics should be included):

- I. Review of essential topics from intermediate algebra (including linear equations and inequalities in two variables and their graphs)
- II. Negative and fractional exponents
- III. Quadratic equations in two variables and their graphs
- IV. Functions – definitions and properties; domain and range
- V. Graphical characteristics of functions; differences between functions and relations
- VI. Operations with functions (addition, subtraction, composition)
- VII. Linear functions – applications to linear regression, revenue and cost, supply and demand, constant rates of change
- VIII. Linear transformations of functions (composite functions)
- IX. Quadratic functions and relations – applications to science, margins, varying rates of change
- X. Polynomial functions – zeroes, relative max and min
- XI. Synthetic division and the remainder and factor theorems
- XII. Piecewise functions
- XIII. Exponential functions and their graphs – applications to growth and decay – science and finance
- XIV. Inverse functions
- XV. Logarithms
- XVI. Logarithmic functions and their graphs (inverse of the exponential) – applications to science, finance, statistical modeling
- XVII. Rational functions and their graphs; asymptotes
- XVIII. Absolute value functions and their graphs

12. Learning Goals:

At the conclusion of this course students will:

1. be able to distinguish between relations and functions using both equations and graphs
2. be able to identify from an equation or a graph which type of function (linear, quadratic, polynomial, piecewise, exponential, logarithmic, rational, or absolute value) is represented
3. for each type of function be able to identify it, find its domain and range, and sketch its graph
4. find composite functions and determine their domain and range
5. solve problems that involve applications of each type of function
6. recognize how applications of mathematics through science and technology have contributed to the advancement of culture

7. exhibit understanding of the broad concepts of the course and not just its discrete elements

13. Assessment Strategies:

Practice is key in mathematics. Assignments and tests should reflect the learning objectives (i.e., include application problems) and not just computational skill.

Daily assignments which assist in incremental development of skills are highly appropriate; some assignments could be graded but opportunity to learn through practice is important even if they are not graded.

Frequent (weekly) quizzes are encouraged so that students do not fall behind.

Unit tests and/or take-home problem sets for grades are recommended.

A midterm is optional, but students should have more than one graded assignment or test prior to the withdrawal date.

A final examination is required.

14. Suggested Text(s) and Materials (example: textbooks, equipment, software, etc.):

A uniform text and course outline (both determined by faculty) will be used for all sections of this course taught in a given semester. Integrated use of a graphing calculator (TI-83 Plus, TI-83, TI-84) is likely.

Angel, A.R. (2004). *Algebra for College Students*. (2<sup>nd</sup> ed.). Prentice Hall.

Blitzer, R. F. (2005). *Algebra for College Students*. (5<sup>th</sup> ed.). Prentice Hall.

Dugopolski, M. (2006). *Algebra for College Students*. (4<sup>th</sup> ed.). McGraw Hill.

Gustafson, R.D. and Frisk, P.D. (2005). *Algebra for College Students*. (7<sup>th</sup> ed.). Thomson, Brooks/Cole.

Kaufman, J.E. and Schwitters, K. L. (2007). *Algebra for College Students*. (8<sup>th</sup> ed.). Thomson, Brooks/Cole.

Lial, M.L., Hornsby, J., and Schneider, D.I. (2005). *College Algebra*. (9<sup>th</sup> ed.). Pearson, Addison-Wesley.

Yoshiwara, K. and Yoshiwara, B. (2007). *Modeling, Functions, and Graphs: Algebra for College Students*. (4<sup>th</sup> ed.). Thomson, Brooks/Cole.