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### Planning Sheet: BACHELOR OF ARTS in MATHEMATICS

(Effective Fall 2012. This major consists of 9 courses)

#### Mathematics major core requirements:

Term	Grade	Course #	AugCore	Title
_____	_____	MAT 145	NSM	Calculus 1 (Prereq: MPG 4)
_____	_____	MAT 146	NSM	Calculus 2 (Prereq: MAT 145)
_____	_____	MAT 245		Calculus 3 (Prereq: MAT 146)
_____	_____	MAT 246		Linear Algebra (Prereq: MAT 245 or 271)
_____	_____	MAT 271		Discrete Mathematical Structures (Prereq: Waived from or passed GST 100, MAT 145 or MAT 146 & one of MAT 163, MAT 164, MAT 252 or MAT 287)
_____	_____	MAT 491		Mathematics Colloquium (0.0 credits, 4 semesters in junior and senior years)

#### Mathematics Elective Requirements:

Select & complete one (1) course from the following *Theoretical Structure* electives:

_____	_____	MAT 304	<input type="checkbox"/> Graph Theory (Prereq: MAT 271, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201. Also recommended MAT 246)
_____	_____	MAT 314	<input type="checkbox"/> Abstract Algebra (Prereq: MAT 246, MAT 271, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201)
_____	_____	MAT 324	<input type="checkbox"/> Analysis (Prereq: MAT 146, MAT 271, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201. Also recommended: additional MAT course numbered 200 or higher)
_____	_____	_____	<input type="checkbox"/> Other approved <i>Theoretical Structure</i> elective: _____

Select & complete additional three (3) courses from the following electives, at least two of which are numbered above 300:

_____	_____	MAT 252	<input type="checkbox"/> Exploring Geometry (Prereq: MAT 145)
_____	_____	MAT 287	<input type="checkbox"/> History of Mathematics (Prereq: MAT 145)
_____	_____	MAT 304	<input type="checkbox"/> Graph Theory (Prereq: MAT 271, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201. Also recommended MAT 246)
_____	_____	MAT 314	<input type="checkbox"/> Abstract Algebra (Prereq: MAT 246, MAT 271, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201)
_____	_____	MAT 324	<input type="checkbox"/> Analysis (Prereq: MAT 146, MAT 271, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201. Also recommended: additional MAT course numbered 200 or higher)
_____	_____	MAT/PHY 327	<input type="checkbox"/> Special Functions of Mathematical Physics (Prereq: MAT 245 & PHY 122 or consent of instructor)
_____	_____	MAT 355	<input type="checkbox"/> Numerical Mathematics and Computation (Prereq: MAT 146, CSC 160, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201.)
_____	_____	MAT 363	<input type="checkbox"/> Chaotic Dynamical Systems (Prereq: MAT 146 & MAT 246, 269 or 271)
_____	_____	MAT 369	<input type="checkbox"/> Modeling & Differential Equations in Biology and Natural Sciences (Prereq: MAT 245, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201)
_____	_____	MAT 373	<input type="checkbox"/> Probability and Statistics I (Prereq: MAT 245; Also recommended MAT 271)
_____	_____	MAT 374	<input type="checkbox"/> Probability and Statistics II (Prereq: MAT 373, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201.)
_____	_____	MAT 377	<input type="checkbox"/> Operations Research (Prereq: MAT 246, ENL 111, 112 or HON 111 & COM 111, 112, 115 or MAT 201.)
_____	_____	MAT 395/495	<input type="checkbox"/> Topics/Advanced Topics in Mathematics (Prereq: at least two MAT courses above 200 & consent of instructor. For 495, an additional upper division MAT course)
_____	_____	_____	<input type="checkbox"/> Other Approved Elective: _____

#### Notes:

- **GPA:** Grade of 2.0 or above is required in each course applicable to the Mathematics major.
- **Keystone:** Complete KEY 490 or a keystone through a different department as part of a second major or minor.
- **Abbreviation Key:** ML = Modern Language; SC = Signature Curriculum; EM = Engaging Minneapolis; AE = Augsburg Experience; KC = Senior Keystone Course; NSM = Natural Science & Mathematics - no lab; NSM-L = Natural Science & Mathematics-with lab; SBS = Social & Behavioral Science; FA = Fine Arts; HUM = Humanities; QA = Quantitative Applications; QF = Quantitative Foundations; QFA = Quantitative Foundations & Applications.

See back for information on graduation skills requirements

## Planning Sheet: GRADUATION SKILLS REQUIREMENTS

These requirements were implemented for Fall 2008. Please talk with your faculty advisor for information.

**Graduation skills, including the Quantitative Reasoning requirements, are completed as follows.** Graduation skills in Critical Thinking, Writing, Speaking, and Quantitative Reasoning are required for graduation. Critical Thinking is embedded in all majors. Plans for completion of other graduation skills are determined by the major department. Consult your department chair or faculty advisor to select appropriate courses to meet the Quantitative Reasoning (QR) graduation skill. QR is satisfied by completing one (1) Quantitative Foundational course (QF) and one (1) Quantitative Application course (QA), or one (1) combined QFA course. The most current information on Graduation Skills can be found in the Augsburg College catalog at [www.augsburg.edu/catalog/](http://www.augsburg.edu/catalog/).

**Transfer students must consult an advisor about potential adjustments to their course requirements to fulfill each graduation skill.**

Designated Major Course	GRADUATION SKILLS – Mathematics	Completed
Embedded in major	<b>Writing Requirements</b> TWO (2) Writing courses	
Embedded in major		
MAT 201, COM 111, COM 115 or other approved speaking course	<b>Speaking</b> One (1) Speaking course	
Designated Major Course	QUANTITATIVE REASONING	Completed
Embedded in major	<b>Quantitative Foundations &amp; Applications</b> One (1) QFA course (Prereq: MPG3)	QFA course
– OR –		
Embedded in major	<b>Quantitative Foundations and Quantitative Applications</b> One (1) QF course (Prereq: MPG 3) <b>and</b> one (1) QA course	QF course
Embedded in major		QA course

## Graduation Tally Checklist

These requirements were implemented in April 2003 and remain in effect until further notice.

Requirement	Progress Towards Completion	
<b>Cumulative Course Credits</b> <ul style="list-style-type: none"> <li>▪ Minimum number of course credits needed for graduation = 32</li> <li>▪ At least 8 credits completed at Augsburg.</li> <li>▪ 6 of last 8 credits completed in residence.</li> <li>▪ Second degree – minimum of 8 credits completed in residence.</li> </ul>	Transfer Credits Earned	
	+ Aug. Credits Earned	
	= Total Credits Earned	
	# Credits Needed	
<b>Grade Point Average (GPA)</b> <ul style="list-style-type: none"> <li>▪ Minimum 2.0 GPA required in major, minor, &amp; overall.</li> <li>▪ Some majors require higher GPA.</li> <li>▪ Latin Honors GPA requirements:                             <ul style="list-style-type: none"> <li>○ Summa cum laude: 3.9-4.0</li> <li>○ Magna cum laude: 3.80-3.89</li> <li>○ Cum laude: 3.60-3.79</li> </ul> </li> </ul>	Cumulative GPA	
	Major 1 GPA	
	Major 2 GPA	
	Minor GPA	
Other Limits	Minimum/Maximum	Your Total
<b>Overall maximum courses graded Pass/No Pass (P/N)</b> <ul style="list-style-type: none"> <li>▪ Grade of 2.0 or above required to Pass and earn credit for course.</li> <li>▪ Maximum of 2 of 6 credits P/N may be in major.</li> </ul>	Maximum of 6	
<b>Major Courses graded Pass/No Pass (P/N)</b>	Maximum of 2	
<b>Latin Honors courses graded Pass/No Pass (P/N)</b>	Maximum of 2	
<b>Latin Honors traditionally graded courses</b>	Minimum of 14	
<b>Internships</b>	Maximum of 4	
<b>Independent/Directed Studies</b>	Maximum of 2	