Department Chair Meeting Minutes
College of Arts and Sciences
June 12, 2014

The meeting was called to order at 2:02 p.m. on Thursday, June 12, 2014. Dr. Vagn K. Hansen, Dean of the College of Arts and Sciences, presided. Department Chairs present: Ms. Chiong-Yiao Chen, Dr. Paul Kittle, Dr. Brent Olive, Dr. Beth Garfrerick for Dr. Gregory Pitts, Dr. Yaschica Williams, Dr. Larry Adams, Dr. Bob Garfrerick, Dr. Keith Lindley for Dr. Claudia Vance, Dr. Lisa Keys-Mathews for Dr. Francis Koti, Dr. Christopher Maynard, Dr. Cindy Stenger, LTC Michael Snyder, Dr. David McCullough, Dr. Brenda Webb, Dr. Richard Hudiburg, Ms. Jacqueline Winston for Dr. Joy Borah, and Dr. May Takeuchi for Dr. Jerri Bullard. Ms. Debbie Tubbs took the minutes. Dr. Hansen recognized and welcomed the proxies representing their departments.

1. **Curriculum Change Proposal from the Department of Biology.** Dr. Kittle made a motion to add BI 111 (4) Principles of Biology as one of two possible prerequisites to BI 102 (4) Introductory Biology and the motion was seconded, opened for discussion, and adopted.

2. **Curriculum Change Proposal from the Department of Mathematics**. Dr. Stenger made a motion to add a new course, MA 391 (2) Mathematics Seminar, and the motion was seconded. During discussion, Dr. Stenger explained the rationale for adding this course was to equip students with tools that are unique to the discipline of mathematics and other STEM fields such as learning to use LaTeX to prepare reports, presentations, and research and technical papers, and to help prepare their students for their MFAT (exit exam). This was adopted.

   Dr. Stenger made a motion to change prescribed math electives, add MA 451 (Introduction to Analysis), MA 447 (Mathematical Statistics I), MA 431 (Advanced Linear Algebra), and MA 391 (Mathematics Seminar) to their major core requirements, move MA 425 (Methods and Materials for Teaching Secondary Mathematics) from a footnote to the prescribed supporting courses, add a recommendation that majors seeking secondary certification take MA 421(College Geometry) as the other math elective, and make editorial changes. The motion was seconded, discussed, and adopted. [During discussion, Dr. Hudiburg noted the editorial changes involved students who had already submitted ACT scores and enrolled in classes based on a previous catalog. Dr. Stenger recognized this possibility, noted this will also be the case in her next proposal, and stated they would "grandfather" in those students - and for the future, through advisement and monitoring, would be cognizant of the fact that these new ACT scores would be from the spring 2015 semester forward.]

   Dr. Stenger made a motion to change course prerequisites for the following courses effective spring 2015: MA 113 (Pre-Calculus Trigonometry), *MA 237 (Linear Algebra), MA 325 (introduction to Discrete Mathematics), MA 345 (Applied Statistics I), *MA 355 (Differential Equations), MA 420 (Combinatorics and Graph Theory), MA 421 (College Geometry), MA 431 (Advanced Linear Algebra I), MA 437 (Modern Algebra I), MA 447 (Mathematical Statistics I), MA 451 (Introduction to Analysis), MA 471W (Applied

Mathematics), and MA 490 (Undergraduate Math Mentoring. *As an informational item, the offering pattern for MA 237 and MA 355 was changed. The motion was seconded and discussed. During discussion, the challenges of "catching" students with a grade of C or below - either through Banner or the more labor intensive going through class rolls and transcripts to identify those students - especially if the student is currently in a course which requires a C or better to advance and the student preregisters for the next course; the current action on the part of some departments to administratively withdraw students who do not achieve a grade of C or better; and the need for awareness of which catalog year a student is following to enforce the ACT scores were mentioned. This motion was adopted.

3. **Comprehensive Exams**. Dr. Hansen noted this topic would only apply to those departments with graduate programs. Currently, a zero-credit hour course is offered as a placeholder in order for the Registrar's Office to know the comprehensive exam has been taken and passed. Dr. Hansen stated he will leave it up to individual departments on how to handle comprehensive exams but if there is more preparation and time involved for faculty than giving the exam/grading the exam for some departments, then that department should create a curriculum proposal for a credit course so that tuition is collected and faculty can be paid and get said credit course approved by the Graduate Council. In the absence of credit, faculty will not receive monetary compensation.

4. **Faculty Evaluation Process**. Dr. Hansen discussed the new Faculty Performance Report form (old Faculty Evaluation Report) where faculty report on how they met previous goals and set new goals. The new form also includes a section IV on faculty evaluation by department chair. He mentioned the May 15 deadline for goals and vita, and the September 15 deadline for faculty evaluations in the *Faculty Handbook*. Dr. Hansen noted that currently, non-tenured faculty have to be evaluated every year and tenured faculty have to be evaluated a minimum of every other year. He pointed out that a few department chairs took the opportunity to go ahead and do a full evaluation in May. He also noted that some of the evaluations were not adequate. He reminded department chairs of the September 15 deadline and said he would share the evaluations received with Dr. Burkhalter.

Dr. Hansen asked the chairs if they liked this new combined reporting and responses included 1) what bad times both of these deadlines were as they fell when faculty are trying to end one semester and begin another and 2) the form states goals should align with department and college performance guidelines but the actual goals never do. Dr. Hansen stated if this group wanted the dates changed they could tell the next dean and recommend more appropriate dates through the proper channels. He noted that there are fewer submissions from faculty simply stating the same goals over and over and declaring them met but continue with the same goals for the next year but he still continues to receive a few of those types of goals and he hopes chairs will require more from those faculty. He noted goals to "continue" are not adequate.

5. **Office Hours**. Dr. Hansen noted that the *Faculty Handbook* states a faculty member is required to report seven office hours during fall and spring, and three-and-a-half office hours during summer. He realizes that faculty and department chairs are often available more than their stated office hours and is very appreciative of this, but notes that he

continues to receive reports of even less than the minimum requirement. He recognized that with on-line courses, some faculty do not list office hours at all, only on-line hours. He stated his hope that department chairs will counsel faculty members in the value of office hours so as to be available to students who might drop by for help, questions, motivation, or just scholarly discussions and to be available to other faculty for conversation and collaboration.

6. **Report from COAD**. Dr. Hansen reported that the following topics were among those discussed at the June 11 COAD meeting:
-Withdrawal from the University after the WP/WF period
-Electronic textbooks
-Kudos in No'Ala
-Department chair quartiles [Dr. Hansen reported that among our college, he received an approximate equal split of responses for and against the new calculation for pay and released time and conveyed such to the COAD; his own response was against the new calculation. There was vocal emphatic displeasure against the proposal from one department chair but because the proposal has to go through Faculty Senate for approval, was confident it would never pass.]
-Staff comp time [Dr. Hansen reported that across the university, it has been noted that there is substantial monetary liability from a build-up of comp time [including this office] due to understaffing. There is concern over the monetary liability and supervisors are asked to encourage staff to take comp time soon after it is accrued, if possible. The discussion was careful not to criticize, but rather to look for solutions.]
-Digital marketing plan [email sent to department chairs] {entertainment industry and professional writing were identified during the department chair meeting and Dr. Hansen said if anyone else wanted to be added to the list to leave him a paper note after today's meeting}

7. **Other**.
-LTC Snyder asked about out-of-state waivers mentioned in the paper and Dr. Hansen answered that his understanding was the waivers were program specific and President Cale would make contact when appropriate.

The meeting adjourned at 3:13 p.m.

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Undergraduate Curriculum Committee
Curriculum Change Proposal Form

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College Name: <u>Arts and Sciences</u>   **Department Name:** <u>Biology</u>

Item(s) to be considered by the Undergraduate Curriculum Committee: (please check all spaces relevant to this proposed change)

☐	Proposed New Course(s)–attach one page syllabus	☐	Change in Course Description
☐	Addition Of/Change in Course Fee	☐	*New Major/Option/Concentration/Minor
☐	Cross Listing of Course	☐	Revised Major/Option/Concentration/Minor
☐	Inactivation of Course	☐	New/Revised Certificate Program
☐	Merger of Major/Option/Concentration/Minor	☐	Revised Admission Requirement
☒	Revised Course Number/Title/Credit/<mark>Prerequisite</mark>	☐	Editorial Change
☐	Other	☐	Change to General Education Component

Will this proposal result in the need for a revised Faculty Credentials Certification Form? Yes ☐ **No** ☒
If yes, for whom: _____

Will the change require additions or deletions to the Major's Course List? Yes ☐ **No** ☒
List courses that will be added or deleted for EACH major affected by the curriculum change (see current Major's Courses List). Include major, course number, and title (e.g., "Add to Biology and Marine Biology – BI 498 Study of Pelagic Birds. _____

Brief Description and Rationale – (1) include catalog course prefix, proposed number, credit hours, title, description, prerequisite, if any; (2) include relevant information concerning UNA's mission and goals, student learning opportunities, impact on existing programs and financial implications <mark>(you must attach a copy of the current catalog page(s) with all suggested changes made using the *Guidelines and Style Manual*)</mark>:

<u>Add BI 111 (4), Principles of Biology, as one of two possible prerequisites to BI 102 (4), Introductory Biology. The content of BI 111 is similar to that of the current prerequisite, BI 101, Introductory Biology. Two situations would be served by this change: (1) if any student, regardless of major, takes only BI 103 at a community college in Alabama and transfers to UNA, they are given credit for BI 111 (not BI 101); students who are not biology majors or minors do not need to then proceed to BI 112, Principles of Biology (for majors/minors), but rather should take BI 102, and (2) a student might enroll in BI 111 and successfully complete the course, but then might decide to not be a biology major or minor but would like to take another biology class to meet Area III general education requirements. We can now manually override the "BI 101 only" prerequisite at this time, but this proposal would make things easier for students and administrative assistants.</u>

Proposed Banner Course Title (30 character maximum): _____
The proposed change(s) will be effective beginning: <u>Spring</u> semester   <u>2015</u> year
If Addition of/Change in Course Fee, provide justification: _____
List the departments or programs on campus consulted on the issues of duplication, overlap, or impact on program: <u>N/A</u>

<u>*April 21, 2014*</u>
Date Approved by Department Curriculum Committee

[signature]
Chair's Signature

<u>6/12/14</u>
Date Approved by College Curriculum Committee**

[signature]
Academic Dean's Signature**

*Proposals within this category require submission and approval by ACHE. Consult the VPAA Office for additional information.
**Courses that are not specific to an academic department/college must be submitted through the VPAA Office and approved by the Council of Academic Deans prior to submission to the Undergraduate Curriculum Committee.

AR 493. (3) **Professional Practices in Art.** Through a blend of reading, research and hands-on activities, this course focuses on practical issues concerning art students' readiness to enter the marketplace at the onset of their early professional lives in the field of visual art and design. This is a mandatory course for BFA and BS/ED degrees, but also offered as an elective for BS and BA degrees. Prerequisite: junior standing. (Fall, Spring)

AR 499. (3) **Independent Study-Practicum.** Open to senior art majors, upon approval of the chair of the department. Provides for independent study, projects, or experiences under departmental determination, supervision, and evaluation. (Fall, Spring, Summer)

BIOLOGY (BI)

BI 100. (1) **Pre-Health Professions Orientation**. An introduction to the health professions for freshman and transfer students planning to seek admission to health professions schools such as medicine, dentistry, optometry, podiatry, pharmacy, and physical therapy. Not applicable for credit toward a major or minor in biology; may be used as a general elective. (Fall)

BI 101. (4) **Introductory Biology**. Cell biology, genetics, evolution, diversity, and ecology, with emphasis on examples that relate to humans. This course may not be used to satisfy the requirements for a major or minor in biology. Three class periods; one 2-hour laboratory period per week. Course fee: $50.00. (Fall, Spring, Summer)

BI 102. (4) **Introductory Biology.** Biology of plants and animals, including humans, via a comparative study of body systems. This course may not be used to satisfy the requirements for a major or minor in biology. Three class periods; one 2-hour laboratory period per week. Prerequisite: BI 101 or 111. Course fee: $50.00. (Fall, Spring, Summer)

BI 111. (4) **Principles of Biology.** The chemical basis of life, cell structure and function, metabolism, and genetics. Designed for biology and other science majors or minors. Three class periods; one 2-hour laboratory period per week. Prerequisite: ACT Science Subtest score of 20 or above (combined SAT of 950 or above) or BI 101 with a grade of C or above. Course fee: $50.00. (Fall, Spring)

BI 112. (4) **Principles of Biology.** Evolution, diversity, and ecology of organisms. Designed for biology and other science majors or minors. Three class periods; one 2-hour laboratory period per week. Prerequisite: BI 111. Course fee: $50.00. (Fall, Spring)

BI 200W. (1) **Biological Literature.** Training in locating and utilizing biological information in the technical literature and in writing a scientific paper. One class period per week plus additional library assignments. Prerequisite: BI 112. (Fall, Spring, Summer)

BI 241. (4) **Human Anatomy and Physiology I.** Structure and physiology of the human body, with emphasis on the integumentary, skeletal, muscular, endocrine, and nervous systems. This course may not be used to satisfy the requirements for a major or minor in biology. Three class periods; one 2-hour laboratory period per week. Prerequisite: BI 101 or BI 111. Additional coursework in biology and/or chemistry and sophomore standing are strongly recommended. Course fee: $50.00. (Fall, Spring, Summer

Undergraduate Curriculum Committee
Curriculum Change Proposal Form

College Name: Arts and Sciences   **Department Name:** Mathematics

Item(s) to be considered by the Undergraduate Curriculum Committee: (please check all spaces relevant to this proposed change)

☒ Proposed New Course(s)–attach one page syllabus   ☐ Change in Course Description
☐ Addition Of/Change in Course Fee   ☐ *New Major/Option/Concentration/Minor
☐ Cross Listing of Course   ☐ Revised Major/Option/Concentration/Minor
☐ Inactivation of Course   ☐ New/Revised Certificate Program
☐ Merger of Major/Option/Concentration/Minor   ☐ Revised Admission Requirement
☐ Revised Course Number/Title/Credit/Prerequisite   ☐ Editorial Change
☐ Other   ☐ Change to General Education Component

Will this proposal result in the need for a revised Faculty Credentials Certification Form? Yes ☒ No ☒
If yes, for whom: Miranda Bowie, Mark Greer, Ashley Johnson, Jesse Prince-Lubawy, Lee Raney, Cynthia Stenger, Jessica Stovall

Will the change require additions or deletions to the Major's Course List? Yes ☒ No ☐
List courses that will be added or deleted for EACH major affected by the curriculum change (see current Major's Courses List). Include major, course number, and title (e.g., "Add to Biology and Marine Biology – BI 498 Study of Pelagic Birds. *Add to Mathematics – MA 391 Mathematics Seminar*

Brief Description and Rationale – (1) include catalog course prefix, proposed number, credit hours, title, description, prerequisite, if any; (2) include relevant information concerning UNA's mission and goals, student learning opportunities, impact on existing programs and financial implications (you must attach a copy of the current catalog page(s) with all suggested changes made using the *Guidelines and Style Manual*):

Proposed new course - MA 391. (2) **Mathematics Seminar**.

Rationale: This is a course to equip students with tools that are unique to the discipline of mathematics and other STEM fields. For example, students will learn to use LaTeX to prepare reports, presentations, and research and technical papers. Other appropriate technology will be introduced as well as selected topics that are important for career-readiness in mathematics.

Proposed Banner Course Title (30 character maximum):   Mathematics Seminar
The proposed change(s) will be effective beginning: spring semester   2015 year
If Addition of/Change in Course Fee, provide justification: _____
List the departments or programs on campus consulted on the issues of duplication, overlap, or impact on program: none

4-28-14
_____   _____
Date Approved by Department Curriculum Committee   Chair's Signature

6/12/14
_____   _____
Date Approved by College Curriculum Committee**   Academic Dean's Signature**

*Proposals within this category require submission and approval by ACHE. Consult the VPAA Office for additional information.
**Courses that are not specific to an academic department/college must be submitted through the VPAA Office and approved by the Council of Academic Deans prior to submission to the Undergraduate Curriculum Committee.

4-16-14

MA 391. (2) **Mathematics Seminar.** This course includes a survey of Mathematical Technology, a discussion of career options in the STEM fields, and strategies for reading and comprehending a technical paper. Other topics are included at instructor discretion. Prerequisites: MA 325 with a grade of C or above. (Fall)

MA 395. (1-3) **Undergraduate Directed Research.** Undergraduate Directed Research (UDR) courses are designed for students who have a serious scholarly interest in a particular mathematics-related topic. A UDR gives students the opportunity to conduct closely supervised research on a chosen mathematics topic and to write a substantial paper or report based on semester long study and analysis of the research question. Research plans must be discussed with a faculty member who specializes in that particular subject area and a full proposal and plan for completing the research must be approved by the department chair prior to registration in the course. (Offered on sufficient demand)

MA 420. (3) **Combinatorics and Graph Theory.** Basic theory and applications of combinatorics and graph theory. Topics in enumerative combinatorics may include: generating functions, compositions, partitions, Fibonacci numbers, permutations, cycle structure of permutations, permutations statistics, Stirling numbers of the first and second kind, Bell numbers, or principle of inclusion and exclusion. Topics in graph theory may include: Eulerian and Hamiltonian cycles, minimum spanning tree algorithm, planar graphs, and coloring problems. Prerequisites: MA 325 with a grade of C or above. (Spring)

MA 421. (3) **College Geometry.** Euclidean and non-Euclidean geometry including the topics of congruence, convexity, and plane and space separation. Prerequisites: MA ~~126 and MA~~ 325 with a grade of C or above. (Spring)

MA 425. (3) **Methods and Materials for Teaching Secondary Mathematics.** Practical aspects of teaching and learning mathematics at the secondary level. Topics covered include secondary mathematics curricula, preparation and presentation of lesson material, classroom management, and professional behaviors. Does not satisfy requirements for mathematics major, minor, or general studies component. Prerequisites: credit or concurrent enrollment in MA 421, ABI/FBI background clearance. (Fall)

MA 431. (3) **Advanced Linear Algebra I.** Systems of linear equations; matrices; determinants; vector spaces; linear transformations. Prerequisites: MA 126 with a grade of C or above; CS 245 with a grade of C or above or MA 325 with a grade of C or above. (Fall; Spring, odd-numbered years)

MA 432. (3) **Advanced Linear Algebra II.** Eigenvalues and eigenvectors; linear programming; Markov processes; numerical linear algebra; game theory and other applications. Prerequisite: MA 431. (Offered on sufficient demand)

MA 437. (3) **Modern Algebra I.** Sets, relations, and functions; elementary number theory; group theory including subgroups, cyclic groups, cosets, and LaGrange's theorem; introduction to rings. Prerequisites: MA 126 with a grade of C or above and MA 325 with a grade of C or above. (Fall)

MA 438. (3) **Modern Algebra II.** Theory of rings; integral domains; fields; group theory II; introduction to Galois theory. Prerequisite: MA 437. (Offered on sufficient demand)

MA 445W. (3) **Applied Statistics II.** A second course in statistical methods with applications. Experimental design, analysis of variance, general regression analysis, orthogonal contrasts, analysis of covariance, and nonparametric statistics. Introduction of statistical computing utilizing the Statistical Analysis System (SAS). Prerequisite: MA 345 or equivalent.

COURSE SYLLABUS

MA 391, Mathematics Seminar

Course Description: (2 semester hours) A survey of mathematical technology, a discussion of career options in the STEM fields, and strategies for reading and comprehending a technical paper.

Prerequisite: MA 325 with a 'C' or above

Course Objectives:

1. To become familiar with various programs in mathematics.

2. To be able to read and comprehend a mathematical paper.

Course Content:

1. An introduction to mathematical programs, including the typesetting language LaTeX

2. A discussion of potential careers and summer opportunities in the STEM fields.

3. Mathematical topics chosen based on student interest.

Course Requirements:

1. Students will be assigned several projects to assess their knowledge of the technology studied.

2. Each student will study at least one mathematical paper and present its contents to the class.

Attendance:

Whenever a student's cumulative absences for any reason exceed the equivalent of four weeks of scheduled classes, no credit may be earned for the course.

Accommodations:

In accordance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, the University offers reasonable accommodations to students with eligible documented learning, physical and/or psychological disabilities. Under Title II of the Americans with Disabilities Act (ADA) of 1990, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Amendment Act of 2008, a disability is defined as a physical or mental impairment that substantially limits one or more major life activities as compared to an average person in the population. **It is the responsibility of the student to contact Disability Support Services to initiate the process to develop an accommodation plan.** This accommodation plan will not be applied retroactively. Appropriate, reasonable accommodations will be made to allow each student to meet course requirements, but no fundamental or substantial alteration of academic standards will be made. Students needing assistance should contact Disability Support Services (256-765-4214).

Undergraduate Curriculum Committee
Curriculum Change Proposal Form

College Name: Arts and Sciences **Department Name:** Mathematics

Item(s) to be considered by the Undergraduate Curriculum Committee: (please check all spaces relevant to this proposed change)

☐	Proposed New Course(s)–attach one page syllabus	☐	Change in Course Description
☐	Addition Of/Change in Course Fee	☐	*New Major/Option/Concentration/Minor
☐	Cross Listing of Course	☒	Revised Major/Option/Concentration/Minor
☐	Inactivation of Course	☐	New/Revised Certificate Program
☐	Merger of Major/Option/Concentration/Minor	☐	Revised Admission Requirement
☐	Revised Course Number/Title/Credit/Prerequisite	☒	Editorial Change
☒	Other – Prescribed Mathematics Electives	☐	Change to General Education Component

Will this proposal result in the need for a revised Faculty Credentials Certification Form? Yes ☐ No ☒
If yes, for whom: _____

Will the change require additions or deletions to the Major's Course List? Yes ☒ No ☐
List courses that will be added or deleted for EACH major affected by the curriculum change (see current Major's Courses List). Include major, course number, and title (e.g., "Add to Biology and Marine Biology – BI 498 Study of Pelagic Birds. Add to Mathematics – MA 451, Introduction to Analysis; MA 447, Mathematical Statistics I; MA 431, Advanced Linear Algebra; new course MA 391, Mathematics Seminar

Brief Description and Rationale – (1) include catalog course prefix, proposed number, credit hours, title, description, prerequisite, if any; (2) include relevant information concerning UNA's mission and goals, student learning opportunities, impact on existing programs and financial implications (you must attach a copy of the current catalog page(s) with all suggested changes made using the *Guidelines and Style Manual*):

1. Editorial changes
2. Changes in Prescribed Math Electives
3. Add to the Major Core Requirements: MA 451 (3) Introduction to Analysis, MA 447 (3) Mathematical Statistics I, MA 431 (3) Advanced Linear Algebra, and new course MA 391 (2) Mathematics Seminar.
4. Move MA 425 (3) Methods and Materials for Teaching Secondary Mathematics requirement from footnote to Prescribed Supporting Courses.
5. Add recommendation that majors seeking secondary certification take MA 421 (3) College Geometry as other math elective.

Proposed Banner Course Title (30 character maximum): _____
The proposed change(s) will be effective beginning: Spring semester 2015 year
If Addition of/Change in Course Fee, provide justification: _____
List the departments or programs on campus consulted on the issues of duplication, overlap, or impact on program: none

_____4-29-14_____
Date Approved by Department Curriculum Committee   Chair's Signature

_____6/12/14_____
Date Approved by College Curriculum Committee**   Academic Dean's Signature**

*Proposals within this category require submission and approval by ACHE. Consult the VPAA Office for additional information.
**Courses that are not specific to an academic department/college must be submitted through the VPAA Office and approved by the Council of Academic Deans prior to submission to the Undergraduate Curriculum Committee.

4-16-14

Students beginning mathematics classes may choose one of three paths depending on their field of interest, previous coursework, and test scores. Students may choose the (1) calculus-bound, (2) statistics-bound, or (3) essential-skills path.

Students choosing the calculus-bound path may enter at MA 125 Calculus I if their ACT math score is 28 or higher. If their ACT math score is ~~22~~ 25 or higher, students may enter at MA 113. Of their ACT math score is 22 or higher, students may enter the calculus-bound path at MA 115, ~~MA 113,~~ or MA 112. Students with an ACT math score between 16 and 21 must enter at MA 100 and students with ACT math scores below 16 must begin with MA 099.

Students choosing the statistics path whose ACT math score is 22 or higher, may enter at MA 147 or MA 110 depending on their previous course-work. Students must enter at MA 105 if their ACT math score is below 22. This track prepares students for statistics courses across various disciplines.

Students choosing majors with no required statistics or calculus course-work may choose the essential skills path and may satisfy UNA's general education mathematics requirement by completing *MA 111.

Mathematics Learning Center. The Mathematics Learning Center (MLC), part of the University Success Center, provides students with resources to become independent learners in mathematics. The center offers one-on-one peer consultations, small group help sessions, and whole-class supplemental instruction.

REQUIREMENTS FOR A BACHELOR OF ARTS OR BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN MATHEMATICS

Course Credit

A. General Education Component. 41

For general education requirements and additional requirements for UNA students, refer to Academic Procedures and Requirements. For the Bachelor of Arts degree the student must satisfy the follow- ing requirement: 6 hours of a required foreign language at the inter- mediate level.

B. Major Core Requirements:

Calculus I (MA 125) **OR Honors Calculus (MA 125H). 4
**Calculus II (MA 126). 4
**Calculus III (MA 227) 4
Linear Algebra (MA 237) **OR Advanced Linear Algebra (MA 431)~~. . . . .~~. . 3
Applied Differential Equations I (MA 238) **OR Differential Equations (MA 355) 3
Introduction to Discrete Mathematics (MA 325) 3
Applied Statistics I (MA 345) **OR** Mathematical Statistics (MA 447)~~. . . . .~~

. . . . 3

*Course may not transfer for general education program credit.
**These courses are required if not completed as a part of the General Education Component.

Course	Credit

Prescribed Math Electives:
Undergraduate Directed Research (MA 295 or 395 or 495) **OR** Mathematics Seminar (MA 391) **OR** Undergraduate Math Mentoring (MA 490) . . . . ~~2 3~~2
*Other Math Electives (MA 356-475, MA 491) 3
‾‾‾‾‾
~~38 39~~41

Prescribed Supporting Courses:
Computer Science I (CS 155) 3
Mathematics majors pursuing secondary certification must also Take MA 425 3

C. Minor:
 A minor, second major, or the education/certification block as deter- mined by the College of Education and Human Sciences is required for the major in mathematics.

D. General Elective hours, if required, to bring total to 120.

REQUIREMENTS FOR A MINOR IN MATHEMATICS

Course	Credit

Calculus I (MA 125). 4
Calculus II (MA 126) 4
Calculus III (MA 227). 4
Applied Differential Equations I (MA 238) OR
 Differential Equations (MA 355) . . . .
 3
Mathematics Electives (300-400 level) 6
 Total
 21

DEPARTMENT OF MILITARY SCIENCE

Chair: Lieutenant Colonel Michael D. Snyder, 136 Wesleyan Annex, 256-765-4271

Faculty: Mr. Atencio, ~~=~~MSG Thompson

The Department of Military Science offers a program of leadership study in the U. S. Army Senior ROTC Program through which students may earn a commission as a second lieutenant in the United States Army, the Army National Guard, or the Army Reserve upon graduation. The program con- sists of a two-year Basic Course Program and a two-year Advanced Course Program. Credit for the Basic Course Program may be accom- plished by completion of the four-week Leader's Training Course (LTC) prior to enrollment in the Advanced Course Program. Students with prior military training who wish to enroll in the Advanced Course may have part or all of the Basic Course requirements waived by the professor of military science. Nursing students who have not completed the Basic Course Program may enter the Advanced Program via the Alternate Entry Option. Advanced Course students must complete university requirements and United States Military History (HI 374) prior to commissioning.

* ~~Mathematics majors pursuing secondary certification must also take Methods and Materials for Teaching Secondary Mathematics, MA 425 (3).~~These courses are required if not completed as a part of the General Education Component.

**Mathematics majors pursuing secondary certification should elect MA 421 (3).

Undergraduate Curriculum Committee
Curriculum Change Proposal Form

College Name: <u>Arts and Sciences</u>   **Department Name:** <u>Mathematics</u>

Item(s) to be considered by the Undergraduate Curriculum Committee: (please check all spaces relevant to this proposed change)

☐	Proposed New Course(s)–attach one page syllabus	☐	Change in Course Description
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☐	Other	☐	Change to General Education Component

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Will the change require additions or deletions to the Major's Course List? Yes ☐ No ☒
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Brief Description and Rationale – (1) include catalog course prefix, proposed number, credit hours, title, description, prerequisite, if any; (2) include relevant information concerning UNA's mission and goals, student learning opportunities, impact on existing programs and financial implications <mark>(you must attach a copy of the current catalog page(s) with all suggested changes made using the *Guidelines and Style Manual*)</mark>:

1. Change prerequisites and/or course offerings on the following Mathematics courses:
   MA 113. (3) Pre-Calculus Trigonometry - Changed course prerequisites (see attached)
   MA 237. (3) Linear Algebra - Changed course prerequisites and course offerings
   MA 325. (3) Introduction to Discrete Mathematics - Changed course prerequisites
   MA 345. (3) Applied Statistics I - Changed course prerequisites
   MA 355. (3) Differential Equations - Changed course prerequisites and course offerings
   MA 420. (3) Combinatorics and Graph Theory - Changed course prerequisites
   MA 421. (3) College Geometry - Changed course prerequisites
   MA 431. (3) Advanced Linear Algebra I - Changed course prerequisites
   MA 437. (3) Modern Algebra I - Changed course prerequisites
   MA 447. (3) Mathematical Statistics I - Changed course prerequisites
   MA 451. (3) Introduction to Analysis - Changed course prerequisites
   MA 471W. (3) Applied Mathematics - Changed course prerequisites
   MA 490. (1) Undergraduate Math Mentoring - Changes course prerequisites

2. The rationale for these changes is to improve success rates in subsequent courses and strengthen the major; to clarify the paths through the major.

Proposed Banner Course Title (30 character maximum): _____
The proposed change(s) will be effective beginning: <u>Spring</u> semester <u>2015</u> year
If Addition of/Change in Course Fee, provide justification: _____
List the departments or programs on campus consulted on the issues of duplication, overlap, or impact on program: <u>none</u>

_____4-22-14_____
Date Approved by Department Curriculum Committee   Chair's Signature

_____6/12/14_____
Date Approved by College Curriculum Committee**   Academic Dean's Signature**

*Proposals within this category require submission and approval by ACHE. Consult the VPAA Office for additional information.
**Courses that are not specific to an academic department/college must be submitted through the VPAA Office and approved by the Council of Academic Deans prior to submission to the Undergraduate Curriculum Committee.

4-16-14

(including work with Binomial Distributions and Normal Distributions), matrices and their applications to Markov chains and decision theory. Additional topics may include symbolic logic, linear models, linear programming, the simplex method and applications. Prerequisite: minimum mathematics ACT score of 22 and credit in high school Algebra I, Algebra II, and Geometry; or grade of C or better in Intermediate Algebra; or Introduction to Finite Mathematics (MA 105 is preferable to MA 100). (Fall, Spring, Summer)

MA 110L. (0) **Finite Math Lab**. This is a one-hour lab that accompanies certain enhanced sections of MA 110. This lab provides supplementary instruction. (Fall, Spring)

*MA 111. (3) **Crucial Skills in Mathematics.** This course emphasizes mastery of foundational skills and facts in mathematics in the context of problem solving. Topics include understanding and composing logically correct arguments, using abstract mathematical thinking and improving problem solving ability. It is intended for majors that do not require calculus or statistics. Students will complete a significant project that applies mathematics to their field of interest. (Fall, Spring, Summer)

MA 111L. (0) **Crucial Skills in Mathematics Lab**. This is a one-hour lab that accompanies certain enhanced sections of MA 111. This lab provides supplementary instruction. (Fall, Spring)

MA 112. (3) **Pre-calculus Algebra.** This course emphasizes the algebra of functions – including polynomial, rational, exponential, and logarithmic functions. The course also covers systems of equations and inequalities, quadratic inequalities, and the binomial theorem. Additional topics may include matrices, Cramer's rule, and mathematical induction. Prerequisite: minimum mathematics ACT score of 22 and credit in high school Algebra I, Algebra II, and Geometry; or grade of C or better in Intermediate Algebra. Not open to students with credit in MA 101. (Fall, Spring, Summer)

MA 112L. (0) **Pre-calculus Algebra Lab**. This is a one-hour lab that accompanies certain enhanced sections of MA 112. This lab provides supplementary instruction. (Fall, Spring)

MA 113. (3) **Pre-calculus Trigonometry.** This course is a continuation of Pre-Calculus Algebra. It includes the study of trigonometric and inverse trigonometric functions and includes extensive work with trigonometric identities and trigonometric equations. The course also covers vectors, complex numbers, DeMoivre's Theorem, and polar coordinates. Additional topics may include conic sections, sequences, and using matrices to solve linear systems. Prerequisite: minimum mathematics ACT score of 25 or grade of C or above in MA 112, or permission of the Chair of the Department of Mathematics. (Fall, Spring, Summer)

MA 113L. (0) **Pre-calculus Trigonometry Lab**. This is a one-hour lab that accompanies certain enhanced sections of MA 113. This lab provides supplementary instruction. (Fall, Spring)

MA 115. (4) **Pre-calculus Algebra and Trigonometry.** This course is a one semester combination of Pre-calculus Algebra and Pre-calculus Trigonometry intended for superior students. The course covers the following topics: algebra of functions (including polynomial, rational, exponential, and logarithmic functions); systems of equations and inequalities; quadratic inequalities; the binomial theorem; the study of trigonometric and inverse trigonometric functions including extensive work with trigonometric identities and trigonometric equations; vectors; complex numbers; DeMoivre's Theorem; polar coordinates. Prerequisite: minimum mathematics ACT score of 22 and credit in high school Algebra I, Algebra II, and Geometry; or

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*Course may not transfer for general education program credit.

MA 115L. (0) **Pre-calculus Algebra and Trigonometry Lab**. This is a one-hour lab that accompanies certain enhanced sections of MA 115. This lab provides supplementary instruction. (Fall, Spring)

MA 121. (3) **Calculus for Business and Life Sciences I.** Algebraic and some transcendental functions; limits; continuity; derivatives; maxima and minima; applications. Prerequisite: MA 112 or equivalent. Not open to students with credit in MA 221. (Fall)

MA 122. (3) **Calculus for Business and Life Sciences II.** Antiderivatives; the definite integral; applications of the definite integral; functions of two or more variables; partial derivatives; maxima and minima; applications. Prerequisite: MA 121. Not open to students with credit in MA 222. (Spring)

MA 125. (4) **Calculus I.** This is the first of three courses in the basic calculus sequence. Topics include limits, derivatives, applications of the derivative, definite and indefinite integrals, exponential and logarithmic functions, and inverse functions. Prerequisite: Mathematics ACT score of 28 or higher; or MA 113 with a C or above; or MA 115 with a C or above. (Fall, Spring)

MA 125H. (4) **Honors Calculus I.** This is the first of three courses in the basic calculus sequence. Topics include limits, derivatives, applications of the derivative, definite and indefinite integrals, exponential and logarithmic functions, and inverse functions. This course is an in-depth study of the above topics that will include extra projects in areas such as theory, programming, applications or other enrichment activities. Prerequisite: Mathematics ACT score of 28 or higher; or MA 115 with a C or above; or MA 113 with a C or above. (Fall)

MA 125L. (0) **Calculus I Lab**. This is a one-hour lab that accompanies certain enhanced sections of MA 125. This lab provides supplementary instruction. (Fall, Spring)

MA 126. (4) **Calculus II.** This is the second of three courses in the basic calculus sequence. Topics include techniques of integration, applications of the integral, sequences, series, conic sections, parametric equations, and polar coordinates. Prerequisite: MA 125 with a C or above. (Fall, Spring)

MA 126L. (0) **Calculus II Lab**. This is a one-hour lab that accompanies certain enhanced sections of MA 126. This lab provides supplementary instruction. (Fall, Spring)

MA 147. (3) **Elementary Statistics.** Descriptive statistics; probability; confidence intervals; tests of hypothesis; appropriate applications. Not open to students with credit in MA 190. Prerequisite: Minimum ACT mathematics score of 22 or credit in MA 100 or higher. (Fall, Spring)

MA 147L. (0) **Elementary Statistics Lab**. This is a one-hour lab that accompanies certain enhanced sections of MA 147. This lab provides supplementary instruction. (Fall, Spring)

MA 181H. (1) **Freshman Honors Seminar.** A survey of the impact of mathematical thought on the evolution of modern society. (Offered on sufficient demand)

MA 227. (4) **Calculus III.** This is the third of three courses in the basic calculus sequence. Topics include vectors, vector-valued functions, functions of several variables, partial derivatives, multiple integrals, vectorfields, line integrals and surface integrals. Prerequisite: MA 126 with a C or above. (Fall, Spring)

MA 237. (3) **Linear Algebra.** This course introduces the basic theory of linear equations and matrices, real vector spaces, bases and dimensions, linear transformations and matrices, determinants, eigenvalues and eigenvectors, inner product spaces, and the diagonalization of symmetric matrices. Additional topics may include quadratic forms and the use of

matrix methods to solve systems of linear differential equations. Prerequisite: MA 126 with a grade of C or above and CS 155 with a grade of C or above. (Spring ~~Offered on sufficient demand~~)

MA 238. (3) **Applied Differential Equations I.** An introduction to numerical methods, qualitative behavior of first-order differential equations, techniques for solving separable and linear equations analytically, and

applications to various models (e.g., population, motion, chemical mix-tures, etc.); techniques for solving higher-order linear differential equations with constant coefficients (general theory, undetermined coefficients, reduction of order, and the method of variation of parameters), with empha-sis on interpreting the behavior of the solutions, and applications to physi-cal models whose governing equations are of higher order; the Laplace transform as a tool for the solution of initial-value problems whose inho-mogeneous terms are discontinuous. Prerequisite: MA 126. Not open to students with credit in MA 355. (Offered on sufficient demand)

MA 295. (1-3) **Undergraduate Directed Research.** Undergraduate Directed Research (UDR) courses are designed for students who have a serious scholarly interest in a particular mathematics-related topic. A UDR gives students the opportunity to conduct closely supervised research on a chosen mathematics topic and to write a substantial paper or report based on semester long study and analysis of the research question. Research plans must be discussed with a faculty member who specializes in that par-ticular subject area and a full proposal and plan for completing the research must be approved by the department chair prior to registration in the course. (Offered on sufficient demand)

MA 306. (3) **Mathematics for the Elementary School Teacher.** The number system; the number line; sentences and statements; logic; sets; relations and functions; modern trends in mathematics education. Does not satisfy requirements for mathematics major, minor, or general studies component. Prerequisite: ABI/FBI background clearance. (Fall, Spring)

MA 325. (3) **Introduction to Discrete Mathematics.** Elementary propositional logic, proof techniques (including induction and contradic-tion), sets, functions, algorithms, combinatorial counting techniques, Boolean algebra, and graph theory. Prerequisite: MA 125 with a grade of C or above 113 or higher. (Fall; Spring, even-numbered years)

MA 345. (3) **Applied Statistics I.** A course in statistical methods with applications. Descriptive statistics, probability, statistical inference including one- and two-sample problems, Chi-Square applications, one-way analysis of variance, linear correlation and regression analysis, and nonparametric statistics. Prerequisite: MA 112 or equivalent with a grade of C or above; or MA 113 with a grade of C or above; or MA 115 with a grade of C or above; or MA 125 with a grade of C or above. (Fall, Spring)

MA 355. (3) **Differential Equations.** A survey of techniques for solv-ing differential equations in which the unknown function depends upon one independent variable; emphasis on analytical techniques, with extensive use of integration methods from calculus; solving higher-order linear differential equations both with constant and with variable coefficients; constructing mathematical models using first-order equations; using the Laplace trans-form for solving initial-value problems with constant coefficients, both with continuous and discontinuous driving functions. Prerequisite: MA 126 with a grade of C or above. Not open to students with credit in MA 238. (Spring Fall, odd-numbered years)

MA 356. (3) **Applied Differential Equations II.** A study of the tech-niques for solving ordinary differential equations by the use of infinite series; numerical methods of solutions; partial differential equations. Prerequisites: MA 227; 238 or 355. (Offered on sufficient demand)

MA 391. (2) **Mathematics Seminar.** This course includes a survey of Mathematical Technology, a discussion of career options in the STEM fields, and strategies for reading and comprehending a technical paper. Other topics are included at instructor discretion. Prerequisites: MA 325 with a grade of C or above. (Fall)

MA 395. (1-3) **Undergraduate Directed Research.** Undergraduate Directed Research (UDR) courses are designed for students who have a serious scholarly interest in a particular mathematics-related topic. A UDR gives students the opportunity to conduct closely supervised research on a chosen mathematics topic and to write a substantial paper or report based on semester long study and analysis of the research question. Research plans must be discussed with a faculty member who specializes in that particular subject area and a full proposal and plan for completing the research must be approved by the department chair prior to registration in the course. (Offered on sufficient demand)

MA 420. (3) **Combinatorics and Graph Theory.** Basic theory and applications of combinatorics and graph theory. Topics in enumerative combinatorics may include: generating functions, compositions, partitions, Fibonacci numbers, permutations, cycle structure of permutations, permutations statistics, Stirling numbers of the first and second kind, Bell numbers, or principle of inclusion and exclusion. Topics in graph theory may include: Eulerian and Hamiltonian cycles, minimum spanning tree algorithm, planar graphs, and coloring problems. Prerequisites: MA 325 with a grade of C or above. (Spring)

MA 421. (3) **College Geometry.** Euclidean and non-Euclidean geometry including the topics of congruence, convexity, and plane and space separation. Prerequisites: MA ~~126 and MA~~ 325 with a grade of C or above. (Spring)

MA 425. (3) **Methods and Materials for Teaching Secondary Mathematics.** Practical aspects of teaching and learning mathematics at the secondary level. Topics covered include secondary mathematics curricula, preparation and presentation of lesson material, classroom management, and professional behaviors. Does not satisfy requirements for mathematics major, minor, or general studies component. Prerequisites: credit or concurrent enrollment in MA 421, ABI/FBI background clearance. (Fall)

MA 431. (3) **Advanced Linear Algebra I.** Systems of linear equations; matrices; determinants; vector spaces; linear transformations. Prerequisites: MA 126 with a grade of C or above; CS 245 with a grade of C or above or MA 325 with a grade of C or above. (Fall; Spring, odd-numbered years)

MA 432. (3) **Advanced Linear Algebra II.** Eigenvalues and eigenvectors; linear programming; Markov processes; numerical linear algebra; game theory and other applications. Prerequisite: MA 431. (Offered on sufficient demand)

MA 437. (3) **Modern Algebra I.** Sets, relations, and functions; elementary number theory; group theory including subgroups, cyclic groups, cosets, and LaGrange's theorem; introduction to rings. Prerequisites: MA 126 with a grade of C or above and MA 325 with a grade of C or above. (Fall)

MA 438. (3) **Modern Algebra II.** Theory of rings; integral domains; fields; group theory II; introduction to Galois theory. Prerequisite: MA 437. (Offered on sufficient demand)

MA 445W. (3) **Applied Statistics II.** A second course in statistical methods with applications. Experimental design, analysis of variance, general regression analysis, orthogonal contrasts, analysis of covariance, and nonparametric statistics. Introduction of statistical computing utilizing the Statistical Analysis System (SAS). Prerequisite: MA 345 or equivalent.

MA 447. (3) **Mathematical Statistics I.** Probability and combinato- rial methods; discrete probability functions; probability density functions for continuous variates; mathematical expectation; moment generating func- tions; appropriate applications. Prerequisite: Credit or concurrent enrollment in MA 227. (Fall)

MA 448. (3) **Mathematical Statistics II.** Sampling distributions; confidence intervals; tests of hypothesis; regression analysis; analysis of variance; appropriate applications. Prerequisite: MA 447. (Offered on suffi- cient demand)

MA 451. (3) **Introduction to Analysis.** Logic and point set theory; real number system; limits; continuity; derivatives. Prerequisites: MA 227 with a grade of C or above and MA 325 with a grade of C or above. (Spring)

MA 452. (3) **Advanced Calculus.** Functions of several variables; mapping; partial derivatives; power series; uniform convergence; line and surface integrals; vector analysis. Prerequisite: MA 451. (Offered on suffi- cient demand)

MA 455. (3) **Complex Analysis.** Algebra and geometry of complex numbers; elementary functions and their mappings; analytic functions; inte- gration in the complex plane; Cauchy's integral theorem; Taylor and Laurent expansions; calculus of residues. Prerequisite: MA 451. (Offered on sufficient demand)

MA 461. (3) **Numerical Analysis.** Error analysis for iterative meth- ods; approximation theory; numerical differentiation and quadrature; initial- value problems for ordinary differential equations; iterative techniques in matrix algebra. Prerequisites: CS 155; MA 227. (Offered on sufficient demand)

MA 471W. (3) **Applied Mathematics.** Mathematical models and modeling techniques in the fields of engineering, ecology, economics, med- icine, chemistry, traffic engineering, and simulation of experiments. Prerequisites: CS 155 with a grade of C or above; MA 227 with a grade of C or above,; MA 420 with a grade of C or above; and either MA 238 with a grade of C or above, or MA 355 with a grade of C or above. (Fall)

MA 475W. (3) **Introduction to Operations Research.** The nature of operations research; modeling problems using operations research techniques; linear programming; the Simplex Method, theory and practice; special problems; network analysis; dynamic programming; theory of games. Prerequisites: MA 126 and CS 155. Corequisite: MA 431. (Offered on sufficient demand)

MA 490. (1) **Undergraduate Math Mentoring.** Students will work on their own mathematics research projects in mathematics education and in parallel apply innovative teaching/mentoring strategies from the litera- ture of mathematics education. They will participate in peer led teaching/ mentoring in the Mathematics Learning Center. Prerequisite: MA 325 126 with a grade of C or above. Departmental approval required. May be repeated once for credit. (Fall, Spring)

MA 491. (3) **Senior Seminar.** Mathematics topics selected accord- ing to the interest and needs of the individual student, with study at advanced undergraduate level. Prerequisite: senior classification, approval of the chair of the department. (Offered on sufficient demand)