

**UCC/UGC/ECCC**

Proposal for Plan Change or Plan Deletion

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| **FAST TRACK (Select if this will be a fast track item**. Refer to  [***Fast Track Policy***](http://www4.nau.edu/avpaa/UCCPolicy/Agenda_FastTrack_Consent.docx) for eligibility) |

***If this proposal represents changes to the intent of the plan or its integral components, review by the college dean, graduate dean (for graduate items) and/or the provost may be required prior to college curricular submission.***

***All Plans with NCATE designation, or plans seeking NCATE designation, must include an NCATE Accreditation Memo of Approval from the NAU NCATE administrator prior to college curricular submission.***

***UCC proposals must include an updated 8-term plan.***

***UGC proposals must include an updated program of study.***

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| 1. College: | CEFNS | | | 2. Academic Unit: | | | Mathematics & Statistics |
|  | |  |  | |  | | |
| 3. Academic      Plan Name: | | BS Mathematics **(MATBS)** | | 4. Emphasis: | |  | |

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| 5. Plan proposal: | | Plan Change | | Plan Deletion | |
|  | New        Emphasis | | Emphasis       Change | | Emphasis             Deletion |

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| 6. Current student learning outcomes of the plan. If structured as plan/emphasis, include for **both c**ore and emphasis.  This plan addresses three general student learning outcomes: breadth and depth of mathematical knowledge, ability to communicate mathematics clearly, and facility with mathematical reasoning. Broad mathematical knowledge implies a basic understanding of the theory and applications of calculus, set theory, algebraic structures, and probability. Students should be able to communicate effectively and be comfortable collaborating with others on mathematical problems. Mathematical reasoning involves the ability to read and understand formal mathematics, construct rigorous proofs, and solve mathematical problems, as well as an understanding of the context and applications of mathematics, and facility with the use of technology in a mathematical context. | Show the proposed changes in this column (if applicable). **Bold** the changes, to differentiate from what is not changing, and change font to **~~Bold Red with strikethrough~~**for what is being deleted. *(*[*Resources, Examples & Tools for Developing Effective Program Student Learning Outcomes*](http://www4.nau.edu/avpaa/Assessment/ProgramLearningOutcomesPDF_090712.pdf)*).*  **UNCHANGED** |

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| 7. Current catalog plan overview and requirements in this column. Cut and paste the *Overview* and *Details* tabs, in their entirety, from the current on-line academic catalog: (<http://catalog.nau.edu/Catalog/>) In addition to University Requirements:   * At least 51 units of major requirements * Be aware that you may not use courses with an MAT or STA prefix to satisfy liberal studies requirements.  Please note that the usual 35 units for liberal studies are reduced to 32 units for mathematics majors, who are exempt from the 3-unit mathematics foundation requirement. * Elective courses, if needed, to reach an overall total of at least 120 units   Please note that you may be able to use some courses to meet more than one requirement. Contact your advisor for details.   | Minimum Units for Completion | 120 | | --- | --- | | Mathematics Required | [MAT 441C](http://catalog.nau.edu/Courses/course?courseId=005265&catalogYear=1314) | | University Honors Program | Optional | | Progression Plan | [View Progression Plan](http://catalog.nau.edu/ProgressionPlans/index.jsp?inst=NAU00&cat=1314#MATBS) |  Major Requirements  * Take the following 51 units with a Grade of "C" or better in each mathematics or statistics course:   + [MAT 136](http://catalog.nau.edu/Courses/course?courseId=005211&catalogYear=1314), [MAT 137](http://catalog.nau.edu/Courses/course?courseId=005213&catalogYear=1314), [MAT 226](http://catalog.nau.edu/Courses/course?courseId=005221&catalogYear=1314), [MAT 238](http://catalog.nau.edu/Courses/course?courseId=005223&catalogYear=1314), [MAT 316](http://catalog.nau.edu/Courses/course?courseId=005229&catalogYear=1314) (18 units)   + [STA 275](http://catalog.nau.edu/Courses/course?courseId=010056&catalogYear=1314) (3 units)   + [CS 122](http://catalog.nau.edu/Courses/course?courseId=001722&catalogYear=1314), [CS 122L](http://catalog.nau.edu/Courses/course?courseId=010375&catalogYear=1314) (3 units)   + [MAT 320W](http://catalog.nau.edu/Courses/course?courseId=005232&catalogYear=1314) (3 units)   + [MAT 411](http://catalog.nau.edu/Courses/course?courseId=005254&catalogYear=1314), [MAT 431](http://catalog.nau.edu/Courses/course?courseId=005260&catalogYear=1314), and [STA 473](http://catalog.nau.edu/Courses/course?courseId=008096&catalogYear=1314) plus one of [MAT 412C](http://catalog.nau.edu/Courses/course?courseId=005256&catalogYear=1314), [MAT 441C](http://catalog.nau.edu/Courses/course?courseId=005265&catalogYear=1314), or [STA 474C](http://catalog.nau.edu/Courses/course?courseId=008098&catalogYear=1314). (Please note that [MAT 412C](http://catalog.nau.edu/Courses/course?courseId=005256&catalogYear=1314), [MAT 441C](http://catalog.nau.edu/Courses/course?courseId=005265&catalogYear=1314), or [STA 474C](http://catalog.nau.edu/Courses/course?courseId=008098&catalogYear=1314) meet Northern Arizona University's senior capstone requirement.) (12 units)   + Additional coursework selected from [MAT 239](http://catalog.nau.edu/Courses/course?courseId=005224&catalogYear=1314) and/or most MAT or STA courses numbered 300 or above (except [MAT 302](http://catalog.nau.edu/Courses/course?courseId=009469&catalogYear=1314), [MAT 401](http://catalog.nau.edu/Courses/course?courseId=005250&catalogYear=1314), [MAT 402](http://catalog.nau.edu/Courses/course?courseId=005251&catalogYear=1314), [MAT 405](http://catalog.nau.edu/Courses/course?courseId=010206&catalogYear=1314), and [MAT 406](http://catalog.nau.edu/Courses/course?courseId=010207&catalogYear=1314)). (12 units)  General Electives  * Additional coursework is required, if, after you have met the previously described requirements, you have not yet completed a total of 120 units of credit.   You may take these remaining courses from any academic areas, using these courses to pursue your specific interests and goals. We encourage you to consult with your advisor to select the courses that will be most advantageous to you. (Please note that you may also use prerequisites or transfer credits as electives if they weren't used to meet major, minor, or liberal studies requirements.) Additional Information  * Be aware that some courses may have prerequisites that you must also take. For prerequisite information click on the course or see your advisor | Show the proposed changes in this column.  **Bold** the changes, to differentiate from what is not changing, and change font to **~~Bold Red with strikethrough~~** for what is being deleted.  In addition to University Requirements:   * At least 51 units of major requirements * Be aware that you may not use courses with an MAT or STA prefix to satisfy liberal studies requirements.  Please note that the usual 35 units for liberal studies are reduced to 32 units for mathematics majors, who are exempt from the 3-unit mathematics foundation requirement. * Elective courses, if needed, to reach an overall total of at least 120 units   Please note that you may be able to use some courses to meet more than one requirement. Contact your advisor for details.   | Minimum Units for Completion | 120 | | --- | --- | | Mathematics Required | [MAT 441C](http://catalog.nau.edu/Courses/course?courseId=005265&catalogYear=1314) | | University Honors Program | Optional | | Progression Plan | [View Progression Plan](http://catalog.nau.edu/ProgressionPlans/index.jsp?inst=NAU00&cat=1314#MATBS) |  Major Requirements  * Take the following 51 units with a Grade of "C" or better in each mathematics or statistics course:   + [MAT 136](http://catalog.nau.edu/Courses/course?courseId=005211&catalogYear=1314), [MAT 137](http://catalog.nau.edu/Courses/course?courseId=005213&catalogYear=1314), [MAT **220 or** 226](http://catalog.nau.edu/Courses/course?courseId=005221&catalogYear=1314), [MAT 238](http://catalog.nau.edu/Courses/course?courseId=005223&catalogYear=1314), [MAT 316](http://catalog.nau.edu/Courses/course?courseId=005229&catalogYear=1314) (18 units)   + [STA **270 or** 275](http://catalog.nau.edu/Courses/course?courseId=010056&catalogYear=1314) (3 units)   + [CS 122](http://catalog.nau.edu/Courses/course?courseId=001722&catalogYear=1314), [CS 122L](http://catalog.nau.edu/Courses/course?courseId=010375&catalogYear=1314) (3 units)   + [MAT 320W](http://catalog.nau.edu/Courses/course?courseId=005232&catalogYear=1314) (3 units)   + [MAT 411](http://catalog.nau.edu/Courses/course?courseId=005254&catalogYear=1314), [MAT 431](http://catalog.nau.edu/Courses/course?courseId=005260&catalogYear=1314), and [STA 473](http://catalog.nau.edu/Courses/course?courseId=008096&catalogYear=1314) plus one of [MAT 412C](http://catalog.nau.edu/Courses/course?courseId=005256&catalogYear=1314), [MAT 441C](http://catalog.nau.edu/Courses/course?courseId=005265&catalogYear=1314), or [STA 474C](http://catalog.nau.edu/Courses/course?courseId=008098&catalogYear=1314). (Please note that [MAT 412C](http://catalog.nau.edu/Courses/course?courseId=005256&catalogYear=1314), [MAT 441C](http://catalog.nau.edu/Courses/course?courseId=005265&catalogYear=1314), or [STA 474C](http://catalog.nau.edu/Courses/course?courseId=008098&catalogYear=1314) meet Northern Arizona University's senior capstone requirement.) (12 units)   + Additional coursework selected from [MAT **220, 226, or** 239](http://catalog.nau.edu/Courses/course?courseId=005224&catalogYear=1314) and/or most MAT or STA courses numbered 300 or above (except [MAT 302](http://catalog.nau.edu/Courses/course?courseId=009469&catalogYear=1314), [MAT 401](http://catalog.nau.edu/Courses/course?courseId=005250&catalogYear=1314), [MAT 402](http://catalog.nau.edu/Courses/course?courseId=005251&catalogYear=1314), [MAT 405](http://catalog.nau.edu/Courses/course?courseId=010206&catalogYear=1314), and [MAT 406](http://catalog.nau.edu/Courses/course?courseId=010207&catalogYear=1314)). (12 units)  General Electives  * Additional coursework is required, if, after you have met the previously described requirements, you have not yet completed a total of 120 units of credit.   You may take these remaining courses from any academic areas, using these courses to pursue your specific interests and goals. We encourage you to consult with your advisor to select the courses that will be most advantageous to you. (Please note that you may also use prerequisites or transfer credits as electives if they weren't used to meet major, minor, or liberal studies requirements.) Additional Information Be aware that some courses may have prerequisites that you must also take. For prerequisite information click on the course or see your advisor. |

8. Justification for proposal:

**The change permits students the alternative of taking MAT 220 in place of MAT 226. MAT 220 is a new course that emphasizes communication, mathematical reasoning and mathematical problem solving, created in part in response to assessment reports indicating a need to strengthen communication and reasoning skills of our majors. The other change allows students with transfer credit or AP credit in STA 270 to count this course in place of STA 275.**

**Currently, students entering with STA 270 credit must take STA 275 as well, and in the process lose three hours credit. STA 275 and STA 270 share significant content, but STA 275 emphasizes a more mathematical approach. Mathematics majors who take their elementary statistics course while at NAU will take STA 275.**

9. NCATE designation, if applicable**:**

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| Initial Plan |  | Advanced Plan | | | |  | Remove Designation | |
| 10. Effective beginning **FALL**: | | | 2014 | |  | | |
| [**See effective dates calendar**](http://www4.nau.edu/avpaa/timelines/1314Effective.xls). | | | |  | | | |

11. Will this proposal impact other plans, sub plans, or course offerings, etc.? Yes      No

   If yes, describe the impact. If applicable, include evidence of notification to and/or response from

each impacted academic unit

**Answer 12-13 for UCC/ECCC only:**

12. A major is differentiated from another major by required course commonality: 24 units of the        required credit hours of a major must be unique, (i.e. not common or not dual use as a required        element in another major), to that major. Does this plan have 24 units of unique required        credit? Yes       No

13. Minor: A planned group of courses from one or more subject matter areas consisting of at least        18 hours and no more than 24 hours. At least 12 hours of the minor must be unique to that minor        to differentiate it from other minors.

         Does this minor have 12 units of unique required credit? Yes       No

**Answer 14-15 for UGC only:**

14. If this is a non-thesis plan, does it require a minimum of 24 units of formal graded coursework?                                                                                                                                       Yes       No

       If no, explain why this proposal should be approved.

15. If this is a thesis plan, does it require a minimum of 18 units of formal graded coursework?                                                                                                                                       Yes       No

       If no, explain why this proposal should be approved.

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| **FLAGSTAFF MOUNTAIN CAMPUS** |  |
| **Scott Galland** | **12/5/2013** |
| Reviewed by Curriculum Process Associate | Date |
|  |  |
| **Approvals**: |  |
|  |  |
| Department Chair/Unit Head (if appropriate) | Date |
|  |  |
| Chair of college curriculum committee | Date |
|  |  |
| Dean of college | Date |
|  |  |
| **For Committee use only:** |  |
|  |  |
| UCC/UGC Approval | Date |

Approved as submitted: Yes  No

Approved as modified: Yes  No

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| --- | --- |
| **EXTENDED CAMPUSES** |  |
|  |  |
| Reviewed by Curriculum Process Associate | Date |
|  |  |
| **Approvals:** |  |
|  | |
| Academic Unit Head | Date |
|  | |
| Division Curriculum Committee (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Division Administrator in Extended Campuses (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Faculty Chair of Extended Campuses Curriculum Committee (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Chief Academic Officer; Extended Campuses (or Designee) | Date |
|  |  |

Approved as submitted: Yes  No

Approved as modified: Yes  No