**Math Plan Logic**

All students need 3 credits of AUCC core math, some majors name specific courses.  
Every major has exactly one of these sets of MATH requirements (Calculus in **bold**)

* Any AUCC
* 117 and 101
* 117, 118, 124
* 117, 118, 125
* 117, 118, 124, 125
* 3 credits from (117, 118, 124) or 120
* 3 credits from 117, 118, 125, **141**
* 3 credits from (117, 118, 124) or 120 or **155**
* 3 credits from (117, 118, 124) or 120 or 125, 126
* 3 credits from (117, 118, 124) or 120 or 125, 126, **141**
* 3 credits from (117, 118, 124) or 120 or 125, 126, **141**, **155**
* 3 credits from (117, 118, 124) or 120 or 125, 126, **141**, **155, 156, 160**
* 3 credits from 118, 124, 125, 126, **155**, **160**
* 117, 118, 124, **141**
* 118, 124, 125
* 118, 124, 125, **141**
* 124, 125, 126, **155**
* 126
* 117, 118, 124, 125, **141** or **155**
* **141**
* **141** or **155** or **160**
* **155**
* **155** or **160**
* **156**
* **156** or **160**
* **160**

Every major has an "ideal first-semester eligibility" from advisors - in general, this maps to what the catalog says, but catalog data is more specific.

Once a collection of majors has been selected, we do these steps:

1. If all are "Any AUCC", our result is "Any AUCC" and we're done.
2. Determine the Calculus requirement
   1. Group requirements into {60, 56/60, 55, 55/60, 41, 41/55, and 41/55/60}
   2. Scan all that specify a single Calculus requirement and mark those requirements as "named".
   3. Scan all where requirement appears in a "3 credits of" list, mark those as "elective".
   4. Determine the "named calculus requirement" **NC** as follows
      1. If **60** is named, then **NC = 60**
      2. Else if **56/60** is named, then
         1. If **55** or **55/60** is named, then **NC = 60**
         2. Else **NC = 56/60**
      3. Else if **55** is named, then **NC = 55**
      4. Else if **55/60** is named, then **NC = 55/60**
      5. Else if **41/55** is named, then **NC = 41/55**
      6. Else if **41/55/60** is named, then **NC = 41/55/60**
      7. Else **NC = null**
3. Determine the Precalculus requirement:
   1. Group named requirements into  
      {17/18/24, (17/18/24|20), 17/18/25, 17/18/24/25, 18/24/25, 18/24/25/26, 24/25/26, 26}
   2. Group elective pick lists into: {17/18/24|20, (17/18/24/25/26|20)}
   3. Determine the "named precalculus requirement" **NP** as follows:
      1. If there are none, **NP = null**
      2. Else if all are **(17/18/24|20)** then NP = **(17/18/24|20)**
      3. Else treat **(17/18/24|20)** as **17/18/24** and **NP = Union(named requirements)**
   4. Determine the "implicit precalculus requirement" **IP** as follows:
      1. If **NC** is null, **IP = null**
      2. Else if **NC = 60** or **NC = 56/60**, **IP** = all Precalculus not named above, with "B" requirements on **24**, **26**
      3. Else if **NC = 55** or **NC = 55/60**, **IP** = all **17**, **18**, **24**, **25** not named above
      4. Else if **NC = 14** or **NC = 41/55** or **NC = 41/55/60**, **IP** = all **17**, **18** not named above
      5. Else **IP = null**
   5. Determine "pick lists" **PICKS** as follows:
      1. Scan all majors with "pick lists".
      2. If the combination of **NC** and **NP** will fulfill a pick list, ignore that pick list.
      3. For all not ignored, delete from the pick list all courses in **NC** and **NP** and reduce credit counts.
      4. **PICKS** = the set of all reduced pick lists for testing later (there is no good way to condense these)
4. Determine the student's current credit and what remains to be completed (**TODO**).
   1. Examine transfer credit and CSU course credit - mark courses as "completed for credit"
   2. **TODO =** everything in **NP** and **NC** that is not marked as completed, tag as "named"
   3. Examine the student's current eligibility based on placement, course work - tag courses as "eligible".
   4. Determine how many remaining credits of core the student needs in addition to **TODO**.
   5. For all courses in **TODO** for which the student does not have prerequisites, add the prerequisite courses to **TODO**, tagged as "prereq, not named".
   6. Process all pick lists - make sure the collection of courses in **TODO** will satisfy every pick list, and for any courses needed to fulfill a pick-list, tag as "meeting pick-list". If **TODO** has an option like **56/60** and satisfying the pick list requires choosing a specific course, replace that requirement in **TODO** with the specific course.
5. Determine placement goals - what courses will the student "ideally" be eligible for (that they are currently not eligible for) based on the **TODO** list.
6. Present completed and **TODO** courses, along with eligibility and next steps.

**Catalog Data** (from 2025-2026 Catalog as of July 15, 2025)

College of Agricultural Sciences

Agricultural and Resource Economics

Major in Agricultural Business

Named: **117**, **118**, **124** (some need **141**)

Ideal: Eligible for **117**

Major in Agricultural Education

Named: 3 credits from **117**, **118**, **124** or **120**.

Ideal: Eligible for **117**

Major in Environmental and Natural Resource Economics

Named: **117**, **118**, **124**, **141**

Ideal: Eligible for **117**

Major in Livestock Business Management

Named: **117**, **118**, **124**

Ideal: Eligible for **117**

Agricultural Biology

Major in Agricultural Biology

Named: 3 credits from **117**, **118**, **124,** **120** or **155**.

Ideal: Eligible for **117**

Animal Sciences

Major in Animal Science

Named: 3 credits from **117**, **118**, **124,** **120, 125, 126, 141,** or **155**.

Ideal: Eligible for **117**

Major in Equine Science

Named: 3 credits from **117**, **118**, **124,** **120, 125, 126, 141,** or **155**.

Ideal: Eligible for **117**

Horticulture and Landscape Architecture

Major in Environmental Horticulture (General)

Named: **117**, **118**, **124**

Ideal: Eligible for **117**

Major in Environmental Horticulture (Landscape Design and Contracting)

Named: **117**, **118**, **125**

Ideal: Eligible for **117**

Major in Horticulture (General)

Named: **117**, **118**, **124**

Ideal: Eligible for **117**

Major in Horticulture (Horticultural Science)

Named: **124**, **125**, **126, 155**

Ideal: Eligible for **124** and **125**

Major in Landscape Architecture

Named: **126**

Ideal: Eligible for **118**

Soil and Crop Sciences

Major in Soil and Crop Sciences

Named: **117**, **118**, **124**

Ideal: Eligible for **117**

College of Business

(All departments)

Major in Business Administration

Named: 3 credits from **117**, **118**, **124,** **120, 125, 126,** **141, 155, 156, 160**.

Ideal: Eligible for **117**

Walter Scott Jr. College of Engineering

Civil and Environmental Engineering

Major in Civil Engineering

Named: **160**

Ideal: Eligible for **160**

Major in Construction Engineering

Named: **160**

Ideal: Eligible for **160**

Major in Environmental Engineering

Named: **160**

Ideal: Eligible for **160**

Electrical and Computer Engineering

Major in Computer Engineering

Named: **160**

Ideal: Eligible for **160**

Major in Electrical Engineering

Named: **160**

Ideal: Eligible for **160**

Mechanical Engineering

Major in Mechanical Engineering

Named: **160**

Ideal: Eligible for **160**

School of Biomedical and Chemical Engineering

Major in Chemical and Biological Engineering

Named: **160**

Ideal: Eligible for **160**

College of Health and Human Sciences

Construction Management

Major in Construction Management

Named: **117**, **118**, **125**

Ideal: Eligible for **117**

Design and Merchandising

Major in Apparel and Merchandising

Named: **117**, **118**, **124**

Ideal: Eligible for **117**

Major in Interior Architecture and Design

Named: **117**, **118**, **124**

Ideal: Eligible for **117**

Food Science and Human Nutrition

Major in Fermentation and Food Science

Named: **117**, **118**, **124** (plus **125** and **141** or **155** for Food Science Concentration)

Ideal: Eligible for **117**

Major in Hospitality and Event Management

Named: **117**, **101**

Ideal: Eligible for **117**

Major in Nutrition Science

Named: **117**, **118**, **124** (plus **125** for Pre-Health Nutrition Concentration)

Ideal: Eligible for **117**

Health and Exercise Science

Major in Health and Exercise Science

Named: **118**, **124**, **125**

Ideal: Eligible for **118**

Human Development and Family Studies

Major in Early Childhood Education

Named: 3 credits AUCC

Major in Family and Consumer Sciences Education

Named: 3 credits AUCC

Major in Human Development and Family Studies

Named: 3 credits AUCC

Social Work

Major in Social Work

Named: 3 credits AUCC

College of Liberal Arts

Anthropology and Geography

Major in Anthropology

Named: 3 credits AUCC

Major in Geography

Named: 3 credits AUCC

Art and Art History

Major in Art (B.F.A or B.A.)

Named: 3 credits AUCC

Communication Studies

Major in Communication Studies

Named: 3 credits AUCC

Economics

Major in Economics

Named: **141** or **155** or **160**

Ideal: Eligible for **141**

English

Major in English

Named: 3 credits AUCC

History

Major in History

Named: 3 credits AUCC

Journalism and Media Communication

Major in Journalism and Media Communication

Named: 3 credits AUCC

Languages, Literatures and Cultures

Major in Languages, Literatures and Cultures

Named: 3 credits AUCC

Philosophy

Major in Philosophy

Named: 3 credits AUCC

Political Science

Major in Political Science

Named: 3 credits AUCC

Race, Gender, and Ethnic Studies

Major in Ethnic Studies

Named: 3 credits AUCC

School of Music, Theatre, and Dance

Major in Dance

Named: 3 credits AUCC

Major in Music

Named: 3 credits AUCC

Major in Theatre

Named: 3 credits AUCC

Sociology

Major in Sociology

Named: 3 credits AUCC

Warner College of Natural Resources

Ecosystem Science and Sustainability

Major in Ecosystem Science and Sustainability

Named: **155** or **160**

Ideal: Eligible for **155**

Major in Watershed Science and Sustainability

Named: **155** or **160** (or **141** for Watershed Sustainability Concentration)

Ideal: Eligible for **155**

Fish, Wildlife, and Conservation Biology

Major in Fish, Wildlife, and Conservation Biology

Named: **155** or **160**

Ideal: Eligible for **155**

Forest and Rangeland Stewardship

Major in Forest and Rangeland Stewardship (General)

Named: **141**

Ideal: Eligible for **141**

Major in Forest and Rangeland Stewardship (Forest Biology Concentration)

Named: **155**

Ideal: Eligible for **155**

Major in Forest and Rangeland Stewardship (Rangeland Conservation and Management Concentration)

Named: 3 credits from **117, 118, 125, 141**

Ideal: Eligible for **117**

Major in Restoration Ecology

Named: 3 credits from **117, 118, 125, 141**

Ideal: Eligible for **117**

Geosciences

Major in Geology

Named: **160**

Ideal: Eligible for **160**

Human Dimensions of Natural Resources

Major in Human Dimensions of Natural Resources

Named: **117, 118, 124**

Ideal: Eligible for **117**

Major in Natural Resource Tourism

Named: **117, 118, 124**

Ideal: Eligible for **117**

College of Natural Sciences

Biochemistry and Molecular Biology

Major in Biochemistry

Named: **155** or **160**

Ideal: Eligible for **155**

Biology

Major in Biological Science

Named: **155** or **160**

Ideal: Eligible for **155**

Major in Zoology

Named: **155** or **160**

Ideal: Eligible for **155**

Chemistry

Major in Chemistry

Named: **155** or **160**

Ideal: Eligible for **155**

Computer Science

Major in Computer Science

Named: **156** or **160**

Ideal: Eligible for **156** or **160**

Mathematics

Major in Mathematics

Named: **160**

Ideal: Eligible for **160**

Natural Sciences

Major in Data Science

Named: **156**

Ideal: Eligible for **156**

Major in Natural Science

Named: **155** or **160**

Ideal: Eligible for **155**

Major in Natural Science (Physics Education)

Named: **160**

Ideal: Eligible for **160**

Physics

Major in Physics

Named: **160**

Ideal: Eligible for **160**

Psychology

Major in Psychology (General)

Named: **117, 118, 124**

Ideal: Eligible for **117**

Major in Psychology (Mind, Brain, and Behavior Concentration)

Named: 3 credits from **117, 118, 124, 120, 125, 126**

Ideal: Eligible for **117**

Statistics

Major in Statistics

Named: **156** or **160**

Ideal: Eligible for **156** or **160**

College of Veterinary Medicine and Biomedical Sciences

Biomedical Sciences

Major in Biomedical Sciences (General)

Named: 3 credits from **118, 124, 125, 126, 155, 160**

Ideal: Eligible for **118**

Major in Biomedical Sciences (Anatomy and Physiology)

Named: **155** or **160**

Ideal: Eligible for **155**

Major in Neuroscience

Named: **155**

Ideal: Eligible for **155**

Environmental and Radiological Health Sciences

Major in Health Physics

Named: **160**

Ideal: Eligible for **160**