Main goals for today:

» Meet us!

» Understand your degree requirements & start thinking about a 4-year plan.
Every bachelor of science degree at USF has the same kind of course requirements:

- Core courses (44 units)
- Courses in your major (number of units depends on your major)
- Foreign language (0—8 units)
- Electives (number of units depends on your major(s)/minor(s))
### "Core" requirements for all USF majors

You must take one 4 unit course from each category.

<table>
<thead>
<tr>
<th>Area A: Foundations of Communications</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1: Speaking</td>
</tr>
<tr>
<td>e.g. Public Speaking, Argumentation etc.</td>
</tr>
<tr>
<td>Not Acceptable: e.g. Interpersonal Communication, Group Dynamics, Theatre</td>
</tr>
<tr>
<td>A2: Rhetoric and Composition ** MUST be completed at USF</td>
</tr>
<tr>
<td>This requirement is fulfilled by completing Rhetoric and Composition 250 at USF. Students transferring with one or two transferable English Composition courses with a minimum grade of C will be placed into RHET 250 or RHET 295 Academic Writing at USF.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area B: Mathematics and the Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1: Math or Quantitative Science</td>
</tr>
<tr>
<td>e.g. Statistics or Pre-calculus and higher</td>
</tr>
<tr>
<td>Not Acceptable: e.g. College Algebra, Intermediate Algebra, courses below Pre-calculus</td>
</tr>
<tr>
<td>B2: Applied or Laboratory Science</td>
</tr>
<tr>
<td>e.g. Biology, Chemistry, Physics, Astronomy, Environmental Science etc. MUST have a Lab</td>
</tr>
<tr>
<td>Not Acceptable: e.g. Nutrition, any science course without an applied lab component</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area C: Humanities</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1: Literature</td>
</tr>
<tr>
<td>e.g. World, American or English Literature etc.</td>
</tr>
<tr>
<td>Not Acceptable: e.g. English Composition, Critical Thinking &amp; Writing</td>
</tr>
<tr>
<td>C2: History</td>
</tr>
<tr>
<td>e.g. U.S./World History, Western Civilizations, History of Native / African /Asian Americans, History of Women etc.</td>
</tr>
<tr>
<td>Not Acceptable: e.g. American Government, History of California / Science</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Area D: Philosophy, Theology and Ethics</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1: Philosophy</td>
</tr>
<tr>
<td>e.g. Introduction to Philosophy, History of Philosophy etc.</td>
</tr>
<tr>
<td>Not Acceptable: e.g. Critical Thinking, Logic, Moral Philosophy</td>
</tr>
<tr>
<td>D2: Theology</td>
</tr>
<tr>
<td>e.g. World or Comparative Religions etc.</td>
</tr>
<tr>
<td>Not Acceptable: e.g. Bible as Literature, Witchcraft &amp; Magic</td>
</tr>
<tr>
<td>D3: Ethics</td>
</tr>
<tr>
<td>e.g. Ethics, Moral Problems, Business Ethics etc.</td>
</tr>
<tr>
<td>Not Acceptable: e.g. Business Law</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area E: Social Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. Intro to Sociology, Psychology, Political Science, Economics, Anthropology etc.</td>
</tr>
<tr>
<td>Not Acceptable: Intro to Business; Intro to Human Services; Intro to Social Work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area F: Visual and Performing Arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. Art History/Appreciation, Music Appreciation, Introduction to Theater etc. (critical analysis, history or appreciation of the arts)</td>
</tr>
<tr>
<td>Not Acceptable: Painting, Drawing, Guitar, Music Theory, Acting (any activity based course)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Learning &amp; Cultural Diversity ** (May Double Count with a major or core requirement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL Service Learning – ** MUST be completed at USF</td>
</tr>
<tr>
<td>CD Cultural Diversity may transfer, subject to review</td>
</tr>
<tr>
<td>e.g. Intro to African/Asian American Studies, Music of Multicultural America</td>
</tr>
</tbody>
</table>

This can be satisfied by Math 109: Calculus I

11 categories x 4 units/category = 44 units

If you plan your courses well, the core classes you take will also knock out these requirements.
Math major requirements
A breakdown of the credits required for the Math degree

Major requirements: 50 units → These are Math / CS courses

Core requirements: 44 units → 4 of these units can be satisfied by a math course

Language requirements: 8 units → It’s possible to test out of this

Total: 50 + 40 + 8 = 98 units

Total number of units required for degree: 128 ( = 16 x 8 )

This leaves 30 units for electives or to do a minor, or even a second major!
### Required courses for the math major

**Major Requirements (50 units)**

- All courses require a ‘C-’ or better

**REQUIRED COURSES (20 UNITS)**

- MATH 109 - Calculus & Analytic Geom I
- MATH 110 - Calculus & Analytic Geom II
- MATH 211 - Calculus & Analytic Geom III
- MATH 230 - Elementary Linear Algebra
- MATH 235 - Introduction to Formal Methods
- MATH 435 - Modern Algebra
- MATH 453 - Real Analysis

**APPLIED ELECTIVE (4 UNITS)**

Complete one of the following:

- MATH 340 - Differential Equations
- MATH 345 - Mathematical Modeling
- MATH 370 - Probability with Applications
- MATH 371 - Statistics with Applications
- MATH 372 - Linear Regression
- MATH 373 - Statistical Learning
- MATH 375 - Numerical Analysis

**CLASSICAL ELECTIVE (4 UNITS)**

Complete one of the following:

- MATH 310 - History of Mathematics
- MATH 314 - Mathematical Circles
- MATH 355 - Complex Analysis
- MATH 367 - Number Theory
- MATH 380 - Foundations of Geometry
- MATH 422 - Combinatorics
- MATH 482 - Differential Geometry
- MATH 485 - Topology

**MATH COLLOQUIUM (1 UNIT, MUST TAKE TWICE)**

- MATH 350 - Math Colloquium

**COMPUTATIONAL COURSE (4 UNITS)**

Complete one of the following:

- CS 110 - Intro to Computer Science I
- PHYS 301 - Intro Scientific Computation

You can google for "USFCA math major" to find this list of required courses.

One applied, one classical, plus two more upper-division courses.

Each course may be attempted only twice.
B.S. in Mathematics Sample Schedule

**Year 1, Fall**
- Math 109 (Calc 1)
- Core/FL/RHET/195
- Core/FL/RHET/195
- Core/FL/RHET/195

**Year 1, Spring**
- Math 110 (Calc 2)
- CS 110 (Intro to CS)
- Core/FL/RHET/195
- Core/FL/RHET/195

**Year 2, Fall**
- Math 211 (Calc 3)
- Math 230 (Linear Algebra)
- Core/Elective
- Core/Elective

**Year 2, Spring**
- Math 235 (Formal Methods)
- Core/Lab Sci
- Core/Elective
- Core/Elective

**Year 3, Fall**
- Math 435 (Modern Algebra)
- Core/Elective
- Core/Elective
- Core/Elective

**Year 3, Spring**
- Math 453 (Real Analysis)
- Math XXX (elective)
- Core/Elective
- Core/Elective

**Year 4, Fall**
- Math XXX (elective)
- Math XXX (elective)
- Core/Elective
- Core/Elective
- Math 350 (Colloquium, 1 credit)

**Year 4, Spring**
- Math XXX (elective)
- Core/Elective
- Core/Elective
- Core/Elective
- Math 350 (Colloquium, 1 credit)

**Notes:** The four math electives (Math XXX), must be 300—400 level courses, and one must be designated *classical* and one designated *applied*.

Math 235 and 201 cannot both be applied to major or minor credit totals, similarly, Math 230 and 202 cannot both apply to major or minor credit totals.
Math Major Requirements

**Required Courses**

- **MATH 109**: Calculus I
- **MATH 110**: Calculus II
- **MATH 211**: Calculus III
- **MATH 230**: Linear Algebra
- **MATH 235**: Intro to Formal Methods
- **MATH 435**: Modern Algebra
- **MATH 453**: Real Analysis

**Elective Courses**

**Classical Electives**

Take four elective courses, including at least one classical elective and at least one applied elective.

<table>
<thead>
<tr>
<th>Course</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 310: History of Mathematics</td>
<td>MATH 110</td>
</tr>
<tr>
<td>MATH 314: Mathematical Circles</td>
<td>MATH 110</td>
</tr>
<tr>
<td>MATH 359: Complex Analysis</td>
<td>MATH 211, 230</td>
</tr>
<tr>
<td>MATH 367: Number Theory</td>
<td>MATH 211, 230</td>
</tr>
<tr>
<td>MATH 380: Foundations of Geometry</td>
<td>MATH 211, 230</td>
</tr>
<tr>
<td>MATH 422: Combinatorics</td>
<td>MATH 235</td>
</tr>
<tr>
<td>MATH 432: Differential Geometry</td>
<td>MATH 235</td>
</tr>
<tr>
<td>MATH 485: Topology</td>
<td>MATH 235</td>
</tr>
</tbody>
</table>

**Applied Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>MATH 340: Differential Equations</td>
<td>MATH 211, 230</td>
</tr>
<tr>
<td>MATH 345: Mathematical Modeling</td>
<td>MATH 211, 230</td>
</tr>
<tr>
<td>MATH 360: Probability &amp; Statistics</td>
<td>MATH 211, 230</td>
</tr>
<tr>
<td>MATH 370: Probability with Applications</td>
<td>MATH 211, 230</td>
</tr>
<tr>
<td>MATH 371: Statistics with Applications</td>
<td>MATH 211, 230</td>
</tr>
<tr>
<td>MATH 372: Linear Regression</td>
<td>MATH 230, 371</td>
</tr>
<tr>
<td>MATH 373: Statistical Learning</td>
<td>MATH 230, 370</td>
</tr>
<tr>
<td>MATH 375: Numerical Analysis</td>
<td>MATH 110, 230, CS 110</td>
</tr>
</tbody>
</table>

Note: Due to overlap in course topics, you cannot receive major credit for both MATH 360 and MATH 370, or for both MATH 360 and MATH 371.

**Required Courses**

- **CS 110**: Intro to CS I
- **CS 110**: Intro to CS II

Note: PHYS 301 may be taken in place of CS 110.

**Prerequisite course may be taken beforehand or concurrently**
Data Science (BSDS) major requirements
A breakdown of the credits required for the BSDS degree

Major requirements: 56 units

These are Math / CS / BSDS courses

Core requirements: 44 units

4 of these units can be satisfied by a math course

Language requirements: 8 units

It’s possible to test out of this

Total: $56 + 40 + 8 = 104$ units

Total number of units required for degree: $128 \ (= 16 \times 8)$

This leaves 24 units for electives or to do a minor (possibly more if you test out of the language requirement)

Note that data science majors can’t double major or minor in math or CS

Business Analytics is one minor that goes well with the BSDS major
## Required courses for the data science major

<table>
<thead>
<tr>
<th>Major Requirements (56 Units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All required courses must be passed with a grade of C- or better.</td>
</tr>
</tbody>
</table>

### INTRO TO DATA SCIENCE (4 UNITS):
- BSDS 100 - Intro to Data Science with R

### MATH AND STATS COURSES (32 UNITS):
- MATH 109 - Calculus & Analytic Geom I
- MATH 110 - Calculus & Analytic Geom II
- MATH 230 - Elementary Linear Algebra
- MATH 370 - Probability with Applications
- MATH 371 - Statistics with Applications
- MATH 372 - Linear Regression
- MATH 373 - Statistical Learning
- MATH 201 - Discrete Mathematics
  or
- MATH 235 - Introduction to Formal Methods

### CS COURSES (16 UNITS):
- CS 110 - Intro to Computer Science I
- CS 112 - Intro to Computer Science II
- CS 245 - Data Struct & Algorithms
- CS 333 - Intro to Database Systems

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You can google for “USFCA BSDS major” to find this list of required courses.

Your major GPA must be 2.0 or higher in order to graduate.

This is a four semester sequence!

- also Math 211: Calculus III

or BSDS 200: Applied Data Science Methods (intro to SQL)
A typical four year plan to complete the BSDS degree requirements

**Freshman year:**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Math 109: Calculus I</td>
<td>• Math 110: Calculus II</td>
</tr>
<tr>
<td>• CS 110: Intro to Computer Science I (Python)</td>
<td>• CS 112: Intro to Computer Science II (Java)</td>
</tr>
<tr>
<td>• Core / Foreign language</td>
<td>• Core / Foreign language</td>
</tr>
<tr>
<td>• Core / Elective</td>
<td>• Core / Elective</td>
</tr>
</tbody>
</table>

➢ Consider taking a freshman/transfer seminar

You should make your own four year plan similar to this one.

Check carefully that all degree requirements are satisfied.

**Sophomore year:**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Math 211: Calculus III</td>
<td>• Math 230: Linear Algebra</td>
</tr>
<tr>
<td>• BSDS 100: Intro to Data Science with R</td>
<td>• BSDS 200: Applied Data Science Methods</td>
</tr>
<tr>
<td>• Core / Elective</td>
<td>• Core / Elective</td>
</tr>
<tr>
<td>• Core / Elective</td>
<td>• Core / Elective</td>
</tr>
</tbody>
</table>

I recommend fulfilling language requirements freshman year.
A typical four year plan to complete the BSDS degree requirements

**Junior year:**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Math 370: Probability</td>
<td>• Math 371: Statistics</td>
</tr>
<tr>
<td>• Math 201: Discrete Math</td>
<td>• CS 245: Data Structures and Algorithms</td>
</tr>
<tr>
<td>• Core / Elective</td>
<td>• Core / Elective</td>
</tr>
<tr>
<td>• Core / Elective</td>
<td>• Core / Elective</td>
</tr>
</tbody>
</table>

**Senior year:**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Math 372: Linear Regression</td>
<td>• Math 373: Statistical Learning</td>
</tr>
<tr>
<td>• Core / Elective</td>
<td>• Core / Elective</td>
</tr>
<tr>
<td>• Core / Elective</td>
<td>• Core / Elective</td>
</tr>
<tr>
<td>• Core / Elective</td>
<td>• Core / Elective</td>
</tr>
</tbody>
</table>

You should make your own four year plan similar to this one.

Check carefully that all degree requirements are satisfied.
Thank you for listening… 😊

Now it’s time for your questions!
Core stuff
Look at your “degree evaluation” frequently!

It tells you which degree requirements you have not yet satisfied

Be sure that you are on track to graduate on time
Look at your “degree evaluation” frequently!

It tells you which degree requirements you have not yet satisfied

Be sure that you are on track to graduate on time
Be aware of various placement tests that are available.

### Placement Tests

Many placement tests can be taken online prior to coming to campus. Please take them before you register for classes.

Please read the following carefully to determine which exams you need to take.

- **Math Placement Test**
- **Calculus Readiness Test**
- **Foreign Language Placement Test**
- **Chemistry Diagnostic Test**
- **Owl Quick Prep Course**
- **Directed Self-Placement (for Rhetoric)**

These help you figure out which math class you should take first and which foreign language and rhetoric classes you should take.
Strategies for completing the Core A2: Rhetoric and Composition requirement

**RHETORIC COURSES AND DIRECTED SELF-PLACEMENT**

When students complete the Directed Self Placement (DSP) process, they will be given advice about which writing course best suits them, and then they will select the course(s) they want to take. Ultimately, students must complete Core A2 to graduate. Some students will opt to go right into Core A2, while others will choose to take a slower path through multiple courses culminating in Core A2. Here are the various pathways students can take:

**3 semester path**

1. Complete RHET 106/N
2. Complete RHET 110/N
3. Complete Core A2 course
A “two semester path” to fulfill Core A2 is the most common option!
Strategies for completing the Core A2: Rhetoric and Composition requirement

1 semester path

First-Year Students

Complete Rhet 195 (for Core A2 credit; note there are also Rhet 195 classes for Core A1 credit)

Transfer Students

Complete any of the following Core A2 courses:
- Rhet 250: Academic Writing for Transfer Students
- Rhet 295: Transfer-Year Writing Seminar
- Rhet 203: Writing in Psychology
- Rhet 206: Writing in the Sciences
- Rhet 310: Business and Technical Writing
- Rhet 323: Rhetoric and Popular Culture
Foreign Language Requirement

Requirements
Requirements vary by college or school. Students must pass each language course with a minimum grade of C- to move up to the next course level.

COLLEGE OF ARTS & SCIENCES
Bachelor of Arts: three consecutive semesters of the same language
Bachelor of Science: two consecutive semesters of the same language

( 8 units )

It is possible to test out of the foreign language requirement