# B.S. Physics & Astronomy

### Notes:
1. Math 112 (Calculus I) preparation is assumed in high school. If you studied differentiation and integration in high school, move on to Math 113.
2. If you want a more formal versus applied math preparation, and perhaps a math minor, take the math sequence on the right. It requires 1-2 more hours than the left track. Both tracks are good.
3. Senior Thesis is required; join research group as early as possible. Credit in Sr. year in 498R.
4. Physics 416, Writing in Physics, can replace Engl 316, and can help you write your thesis. Take it when your research is essentially complete.
5. Color code: blue = math & CS, orange = introductory sequence, purple = astronomy, yellow = careers, green = computational, red = upper level.

### Suggested semester:

#### Freshman
- **Fall** (FW): MATH 113 Calculus II (4.0hr)
  - Prerequisite: High school calc. or Math 112
- **Winter** (W): MATH 213 Linear Alg (2-1 hr)
- **Spring** (SP): PHYS 121 Mechanics

#### Sophomore
- **Fall** (FW): MATH 302 Math for Eng. 1 (4.0hr)
  - Prerequisite: Math 112
- **Winter** (W): MATH 314 Calculus many variables (3.0hr)
  - Prerequisite: Math 302 or 314, Math 303 or 334
  - Concurrent: PHYS 220 Modern Phys
- **Spring** (SP): PHYS 227 Solar System

#### Junior
- **Fall** (FW): PHYS 321 Mechanics
- **Winter** (W): MATH 314 Calculus many variables (3.0hr)
- **Spring** (SP): PHYS 318 Math Phys

#### Senior
- **Fall** (FW): PHYS 318 Math Phys

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### Additional courses to consider for those planning on grad school in astronomy:
- Math 302, 303, 334, 360, 442, 452, 471
- Computational Physics 1 (Math 302 or 314)
- Statistical/Thermal Physics (Math 303 or 334)
- Astrophysics 1 (Math 303 or 334)

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### Required Courses:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>MATH 113</td>
<td>Calculus II</td>
</tr>
<tr>
<td>Freshman</td>
<td>MATH 213</td>
<td>Linear Alg</td>
</tr>
<tr>
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<td>PHYS 121</td>
<td>Mechanics</td>
</tr>
<tr>
<td>Sophomore</td>
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<td>Sophomore</td>
<td>PHYS 220</td>
<td>Modern Phys</td>
</tr>
<tr>
<td>Junior</td>
<td>PHYS 321</td>
<td>Mechanics</td>
</tr>
<tr>
<td>Junior</td>
<td>PHYS 318</td>
<td>Math Phys</td>
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<tr>
<td>Senior</td>
<td>PHYS 318</td>
<td>Math Phys</td>
</tr>
<tr>
<td>Senior</td>
<td>PHYS 416</td>
<td>Writing in Phys.</td>
</tr>
</tbody>
</table>

### Optional Courses:

- PHYS 360, 442, 452, 471
- Computational Physics 3 (Math 302 or 314)
- Statistical/Thermal Physics (Math 303 or 334)
- Astrophysics 1 (Math 303 or 334)

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### Prerequisite Courses:

- Math 112 (Calculus I) preparation is assumed in high school.
- Math 302, 314, 334 for PHYS 220, 318
- Math 303, 334 for PHYS 227, 318
- Math 302, 314 for PHYS 220, 227

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### Concurrent Courses:

- Math 213 (Linear Alg)
- PHYS 121 (Mechanics)
- PHYS 220 (Modern Phys)
- PHYS 227 (Solar System)
- PHYS 318 (Math Phys)
- PHYS 416 (Writing in Phys)

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