<table>
<thead>
<tr>
<th>(1) Where are the learning outcomes for this level/program published? (please specify) Include URLs where appropriate.</th>
<th>(2) Other than GPA, what data/evidence is used to determine that graduates have achieved the stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)</th>
<th>(3) Who interprets the evidence? What is the process? (e.g. annually by the curriculum committee)</th>
<th>(4) What changes have been made as a result of using the data/evidence?</th>
<th>(5) Date of most recent program review (for general education and each degree program)</th>
</tr>
</thead>
</table>
| Master’s recipients demonstrate minimum competency in outcomes defined for the PhD, assessed in a different way and to a different level of achievement: Students will be able to:  
- Demonstrate the tools to create new knowledge in the discipline of physics or astronomy  
- Communicate effectively orally and in writing  
- Solve physics or astronomy problems using logical, mathematical and computational skills  
- Demonstrate an understanding of the key concepts in the core areas of physics or astronomy  
- Demonstrate competency teaching physics or astronomy topics and problem solving in a classroom setting | Master’s recipients demonstrate competence in one of three ways:  
1. A co-authored paper  
2. Successful completion of core competency requirements (formerly the qualifying exams)  
3. A master’s thesis | Every year the department reviews students who leave with a master’s degree, paying special attention to the two-thirds for whom the department initiated departure. | Recent changes have largely been a response to concerns about equity in students’ opportunity to demonstrate achievement of outcomes. Since a time-limited qualifying exam does not reflect real-world circumstances, students demonstrate readiness for candidacy based on high grades in certain courses or, if the high grade threshold is not met, a take-home written assessment and an oral component. | Fall 2018 |