Template For Development Of An Accelerated Bachelor's / Master's Program

1. Proposing College(s)/School(s): College of Science and Mathematics
   Department(s): Physics

2. Program Coordinator(s): James D. Hanson
3. Effective Term: Fall 2015

4. Included Programs:
   Undergraduate: B.S. Physics
   Graduate: M.S. Physics (non-thesis)

5. Program Hours:
   (Indicate the total number of credit hours (c.h.) for each of the programs -- undergraduate and graduate)
   Undergraduate: 120
   Graduate: 30

6. Admission Qualifications:
   Credit Hours Earned
   Minimum: 45
   Maximum:
   At Auburn: 24
   Grade Point Average
   Major: 3.4

   Minimum Grade in Gateway Course
   Course(s), Grade(s):

   Time Limit to Earn Degree
   Undergraduate Program:
   Graduate Program:

   Grades must be earned within time limits set by the program (where applicable) and the Graduate School.
   Grade Point Average
   Major: 3.4

   Minimum Grade in Major Course(s)
   Course(s), Grade(s): 3.0

7. Retention Standards:

   (NOTE - The Graduate School has set the minimum GPA requirement for retention in graduate programs at 3.4. Departments may set higher requirements as necessary.)

8. Graduate Course Substitutions:
   (List all courses at the graduate level that will count for undergraduate credit in the program)

   NOTE - No more than 9 c.h. of graduate credit may be counted toward a student's undergraduate work, for graduate programs up to and including 35 c.h. total. For graduate programs of 36 c.h. or higher, no more than 12 c.h. of graduate credit may be counted toward a student's undergraduate work.

   Graduate Course
   PHYS 6100
   PHYS 6500
   PHYS 6600
   PHYS 6610
   PHYS 6620

   Undergraduate Course Replaced
   PHYS 5100
   PHYS 5500
   PHYS 5600
   PHYS 5610
   PHYS 5620

   Credit Hours
   3
   3
   3
   3
   3

9. Maximum Double-Counted Hours: 9

   (Indicate the maximum number of credit hours (c.h.) that may be double-counted, as per the guidelines listed above)
10. Justification for Program: The Accelerated Bachelor's / Master's (ABM) Degree Program in Physics offers outstanding students the opportunity to earn both the bachelor's and master's degrees in less time and at less cost than usual. Outstanding students will have the opportunity to explore the prospects for graduate study, engage with graduate faculty, and deepen their understanding of physics. The program will foster the integration and interaction between undergraduate and graduate physics programs at Auburn.

(Include a concise, yet adequate rationale for the proposal of the accelerated program — citing such factors as market need, student demand, etc.)

11. Application Process: Students must complete an “Application for Admission to the Accelerated Bachelor's / Master's Degree Program.” Students must work with a graduate adviser appointed by the Department Chair to complete an approved Plan of Study, including:
   a) a list of the courses that count towards both the undergraduate and graduate degree; and
   b) the projected dates for the completion of the bachelor's and master's degrees.

(Outline the process for acceptance into the accelerated program; include all necessary departmental, college, and other approvals that will be necessary)

12. Program Matriculation: Once the Plan of Study is approved, the student is considered to have been admitted into the Physics ABM program. The student must then apply for admission to the Graduate School (including submitting the application, paying the application fee, and providing transcripts and standardized test scores, as required).

(Provide a brief narration of the program, as it will be taken by students; include estimated timeframes for application to the graduate portion of the program, completion of the undergraduate portion of the program, and any internships/field experience)

13. Academic Advising: All students in the Physics ABM program will work closely with their graduate adviser, who is appointed by the Department Chair. The graduate adviser will consult with the departmental Undergraduate Program Officer (UPO), Graduate Program Officer (GPO) and Department Chair. The adviser and student will meet each semester with the Department Chair (or the Chair's designee) to review the student’s progress and to discuss ongoing concerns.

(Address how academic advising for the student will be handled, from undergraduate program admission through completion of the accelerated program)

14. Withdrawal Process: A student can withdraw from the program at any time by informing the Department Chair of their intent to withdraw. If a student withdraws, then the requirements for a B.S. degree in Physics are those of the existing B.S. program, and the requirements for an M.S. degree in Physics are those of the existing M.S. program.

(Outline both the process for withdrawing from the accelerated program, as well as the implications on matriculation and earning of undergraduate and graduate degrees)

15. Additional Information: Please see the associated Application for Accelerated BS/MS Degree Program in Physics.

(Include any additional information regarding the accelerated program that may be pertinent to its review and approval)

Curriculum Models
Approvals

Department Chair / Head

Date
4-9-14

College / School Curriculum Committee

Date
4-9-14

College / School Dean

Dean of the Graduate School

Date

Assoc. Provost for Undergraduate Studies

Date

Contact Person: James D. Hanson
E-Mail Address: hansojd@auburn.edu
Telephone: 4-4264
Fax:
Application for Accelerated BS/MS Degree Program in Physics
Approved by the Graduate Faculty of the Physics Department on 20 March 2014

Justification for the Program
The Accelerated Bachelor’s / Master’s (ABM) Degree Program in Physics offers outstanding students the opportunity to earn both the bachelor's and master’s degrees in less time and at less cost than usual. Outstanding students will have the opportunity to explore the prospects for graduate study, engage with graduate faculty, and deepen their understanding of physics. The program will foster the integration and interaction between undergraduate and graduate physics programs at Auburn.

Minimum Qualifications for Admission
The minimum qualifications for admission to the Physics ABM Degree Program are:

1) The student must have completed least 45 credit hours
2) The student must have completed least 24 credit hours at Auburn University
3) The student must have a cumulative grade point average (CGPA) of 3.4 / 4.0 or higher
4) The student must have completed all of these courses:
   - PHYS 2100 – Intermediate Mechanics
   - PHYS 2200 – Introductory Quantum Physics and Relativity
   - PHYS 2300 – Physics Laboratory Skills

Minimum Qualifications for Continuation and Graduation
Minimum qualifications for continuation and graduation are:

1) No more than 9 hours selected from the following courses may be counted toward the requirements of both degrees:
   - PHYS 6100 – Applications of Quantum Mechanics
   - PHYS 6500 – Fundamentals of Physics
   - PHYS 6600 – Frontiers of Physics
   - PHYS 6610 – Introduction to Solid State Physics
   - PHYS 6620 – Survey of Plasma Physics

2) Students must maintain a cumulative grade point average (CGPA) of 3.4 / 4.0 or higher. If the student completed the Bachelor’s degree requirements with a cumulative GPA of less than 3.4 / 4.0, the student cannot double-count credit hours and is terminated from the program.
3) Students must earn a grade of B (3.0 / 4.0) or better in all double-counted, graduate-level courses.
4) Students must complete all requirements for the bachelor's degree, be admitted to the Graduate School, and be admitted into the Physics master’s degree program. Admission to the ABM Degree Program does not guarantee admission to the Graduate School.
5) Students who do not follow the approved Plan of Study may be ineligible to continue in the program.
Application for Accelerated BS/MS Degree Program in Physics
Approved by the Graduate Faculty of the Physics Department on 20 March 2014

Application Process
Students must complete an “Application for Admission to the Accelerated Bachelor's / Master’s Degree Program.” Students must work with a graduate adviser appointed by the Department Chair to complete an approved Plan of Study, including:
   a) a list of the courses that count towards both the undergraduate and graduate degree; and
   b) the projected dates for the completion of the bachelor's and master's degrees.

Matriculation Process
Once the Plan of Study is approved, the student is considered to have been admitted into the Physics ABM program. The student must then apply for admission to the Graduate School (including submitting the application, paying the application fee, and providing transcripts and standardized test scores, as required).

Plan for Advising Students Admitted to the Program to Ensure Success
All students in the Physics ABM program will work closely with their graduate adviser, who is appointed by the Department Chair. The graduate adviser will consult with the departmental Undergraduate Program Officer (UPO), Graduate Program Officer (GPO) and Department Chair. The adviser and student will meet each semester with the Department Chair (or the Chair's designee) to review the student’s progress and to discuss ongoing concerns.
## Accelerated BS/MS Degree Program in Physics

### Plan of Study

#### Freshman

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<th>Fall</th>
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#### Sophomore

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<td>COMM 1000 Public Speaking</td>
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<td>Core History II</td>
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<td>PHYS 2200 Introductory Quantum</td>
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<td>Physics and Relativity</td>
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<td>Equations</td>
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#### Junior

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<td>Professional Elective (3)</td>
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<td>PHYS 4100 Fundamentals of Quantum Mechanics</td>
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<td>PHYS 3200 Statistical Thermodynamics</td>
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#### Senior

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**Total Hours : 120**
# Fifth Year

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(1) Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

(2) Science Electives consist of a sequence of GEOL 1100-GEOL 1110 or CHEM 1030/1031-CHEM 1040/1041 or BIOL 1020-BIOL 1030.

(3) PHYS and Professional Electives must be at the 3000 level or higher. A Plan of Study indicating choices and physics advisor approval for Physics and Professional electives must be on file in the Dean’s Office before scheduling those courses.

(4) This course must be taken the semester of graduation.

(5) This course requirement may be satisfied with a dual-counted course from chosen from among PHYS 6100, 6500, 6600, 6610, 6620.