

**UNDERGRADUATE AND PROFESSIONAL MAJOR CHANGE BULLETIN NO. 7
Spring 2014**

---REQUIREMENTS---

Faculty Senate Approved February 27, 2014

The requirements listed below reflect the undergraduate major curricular changes approved by the Catalog Subcommittee since approval of the last Undergraduate Major Change Bulletin. All changes are underlined. Deletions are crossed out. The column to the far right indicates the date each change becomes effective.

Dept	Proposed	Effective Date
<p>School of the Environment Revise minor in Rangeland Ecology and Management</p>	<p>Rangeland Ecology and Management Minimum of <u>20-23 16-17</u> credit hours. Required courses: NATRS 455, 460, 468 and SOIL SCI 201, and SOILS 368. Plus One from of NATRS 459 or BIOLOGY 462, <u>ENVR SCI 444, or NATRS 430.</u> One from NATRS 428, 430 or ENVR SCI 444. One from ANIM SCI 101 or 174. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.</p>	<p align="center">8-14</p>
<p>School of the Environment Revise minor in Forestry</p>	<p>Forestry Minimum of 16 credit hours. Required courses: NATRS 204, <u>300, 301, 305.</u> Restricted electives: at least <u>8.5</u> credit hours selected from <u>ENVR SCI 491, NATRS 331, 348, 420, 430, 435, 446, 450, 460, 464, SOILS 368, 468.</u> Credit hours must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.</p>	<p align="center">8-14</p>
<p>School of the Environment Change name and revise minor in Wildlife</p>	<p>Wildlife <u>Ecology</u> Minimum of 19 credit hours <u>is required.</u> Required courses: NATRS 280 <u>310</u>, 435. Restricted electives: at least 11 credit hours from NATRS 431, 436 <u>441, 446,</u> 450, 460 or no more than one from of the following: BIOLOGY 423, 428, 432. Credit hours for the minor must include 9 hours taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.</p>	<p align="center">8-14</p>
<p>Physics and Astronomy Drop all options except Physics – Standard Option and Physics – Astrophysics Option.</p>	<p>Drop the following options: Biophysics Option, Computation Option, Continuum Physics and Acoustics Option, Education Option, Off Campus Practice Teaching, Environmental Option, Instrumentation Option; Materials Science Option, Mathematical Physics Option, Nanotechnology Option; Optics and Electronics Option.</p>	<p align="center">8-14</p>

Physics and Astronomy
Revise graduation requirements for Physics – Standard Option in the following way:
Combine Physics – First and Second Year Requirements and Physics – Standard Option requirements paragraph under Third and 4th Year and Option Requirements into new 4-year Schedule of Studies layout; rename Physics – Standard Option, and revise graduation requirements for degree program.

Physics - ~~First and Second Year Requirements(61 Hours)~~ Standard Option (121)

~~The Department of Physics and Astronomy has developed a variety of options for students seeking a major in Physics. For most of these options the program in the first two years is the same and will be referred to as the "standard program". Additions to the standard program will be noted in some specific options.~~The program of courses below is appropriate for students who have had a good experience with calculus in high school and wish to start physics in the first semester at WSU (even though the student may be placed in MATH 171, if their high school grades for the year course were B or better they can follow this schedule of study). Students who have placed in MATH 172 can accelerate the math sequence. Student who have not had calculus in high school should defer Physics 201 (or 205) until they have completed MATH 171. Upon consultation with the departmental advisor, modifications can be made in the list of required courses to fit the needs of individual students. The schedule of studies below includes the additional lab credit required for graduation by the College of Arts and Sciences.

Certification Requirements

A student may certify as a physics major after completing 30 credits (preferably including PHYSICS 201 and MATH 171) with a cumulative gpa of 2.0 or better.

Graduation Requirements

A research experience is required of all students as a 499 project; however, to gain valuable work experience outside the university, students are strongly encouraged to participate in an internship or research experience in industry or a government lab outside of WSU. The summer after the junior year is the most appropriate time for this experience. All students are required to submit an undergraduate thesis to a committee of two physics faculty members in the senior year. PHYSICS 490 will give credit for this effort. The student must earn a C (2.0) or better grade in each of the required physics courses.

First Year

<i>First Term</i>	<i>Hours</i>
CHEM 105 [PSCI]	4
ENGLISH 101 [WRTG]	3
HISTORY 105 [ROOT]	3
MATH 171 [QUAN]	4
PHYSICS 188	1
<u>Social Sciences [SSCI]</u>	<u>3</u>
<i>Second Term</i>	<i>Hours</i>
CHEM 106 or 116	4
Creative and Professional Arts [ARTS]	3
<u>HISTORY 105 [ROOT]</u>	<u>3</u>
MATH 172	4
PHYSICS 201 or 205	4-5
Second Year	
<i>First Term</i>	<i>Hours</i>
Biological Sciences [BSCI]	3
Humanities [HUM]	3
MATH 220	2
MATH 273	2
PHYSICS 202 or 206	4-5
<u>PHYSICS 303</u>	<u>3</u>
<i>Second Term</i>	<i>Hours</i>
CPT S 121	4
<u>Creative and Professional Arts [ARTS]</u>	<u>3</u>
<u>Humanities [HUM]</u>	<u>3</u>
MATH 315	3
PHYSICS 303	3
<u>PHYSICS 304</u>	<u>3</u>
PHYSICS 330	3
Social Sciences [SSCI]	3
Complete Writing Portfolio	
Third Year	
<i>First Term</i>	<i>Hours</i>
<u>CPT S 121, E E 221, or MATH 300</u>	<u>2-4</u>
UCORE Elective Diversity [DIVR]	3

MATH Elective ¹	3
PHYSICS 304	3
PHYSICS 320	3
PHYSICS 341	3
Second Term	Hours
<u>ENGLISH 402 [WRTG]</u>	<u>3</u>
MATH Elective ¹	3
PHYSICS 342	3
PHYSICS 415 [M]	3
<u>PHYSICS 499</u>	<u>1</u>
<u>Standard Option Elective²</u>	3
Fourth Year	
First Term	Hours
<u>Creative & Professional Arts [ARTS], Humanities [HUM], or Social Sciences [SSCI]</u>	<u>3</u>
ENGLISH 402 [WRTG]	3
PHYSICS 410	3
PHYSICS 443	3
PHYSICS 450	3
PHYSICS 463	3
PHYSICS 490 [M]	1
<u>Standard Option Elective²</u>	<u>3</u>
<u>Technical elective³</u>	<u>3</u>
Second Term	Hours
<u>Integrative Capstone [CAPS]</u>	<u>3</u>
PHYSICS 465	3
PHYSICS 499	4
<u>Standard Option Elective²</u>	<u>9</u>
<u>Technical Elective³</u>	<u>4</u>

Footnotes

¹ 6 hours of math electives must be chosen from MATH 3XX or MATH 4XX.

² 15 hours of standard option electives must be chosen from PHYSICS 3XX or 4XX or ASTRONOM 3XX or 4XX.

³ 7 hours of technical electives must include at least 4 hours from the upper division, and must be chosen from ASTRONOM.

	<u>CHEM, MATH, or PHYSICS.</u>	
<p>Physics & Astronomy Combine Physics – First and Second Year Requirements and Physics – Astrophysics Option requirements paragraph under Third and 4th Year and Option Requirements into new 4-year layout; rename Physics – Astrophysics Option, and revise graduation requirements for degree program.</p>	<p>Physics – First and Second Year Requirements(61-Hours) <u>Astrophysics Option (121)</u></p> <p>The Department of Physics and Astronomy has developed a variety of options for students seeking a major in Physics. For most of these options the program in the first two years is the same and will be referred to as the "standard program". Additions to the standard program will be noted in some specific options. The program of courses below is appropriate for students who have had a good experience with calculus in high school and wish to start physics in the first semester at WSU (even though the student may be placed in MATH 171, if their high school grades for the year course were B or better they can follow this schedule of study). Students who have placed in MATH 172 can accelerate the math sequence. Student who have not had calculus in high school should defer Physics 201 (or 205) until they have completed MATH 171. Upon consultation with the departmental advisor, modifications can be made in the list of required courses to fit the needs of individual students. <u>The schedule of studies below includes the additional lab credit required for graduation by the College of Arts and Sciences.</u></p> <p>Certification Requirements A student may certify as a physics major after completing 30 credits (preferably including PHYSICS 201 and MATH 171) with a cumulative gpa of 2.0 or better.</p> <p>Graduation Requirements A research experience is required of all students as a 499 project; however, to gain valuable work experience outside the university, students are strongly encouraged to participate in an internship or research experience in industry or a government lab outside of WSU. The summer after the junior year is the most appropriate time for this experience. All students are required to submit an undergraduate thesis to a committee of two physics faculty members in the senior year. PHYSICS 490 will give credit for this</p>	8-14

effort. The student must earn a C (2.0) or better grade in each of the required physics courses.

First Year

<i>First Term</i>	<i>Hours</i>
CHEM 105 [PSCI]	4
ENGLISH 101 [WRTG]	3
HISTORY 105 [ROOT]	3
MATH 171 [QUAN]	4
PHYSICS 188	1
<u>Social Sciences [SSCI]</u>	<u>3</u>

<i>Second Term</i>	<i>Hours</i>
CHEM 106 or 116	4
Creative and Professional Arts [ARTS]	3
<u>HISTORY 105 [ROOT]</u>	<u>3</u>
MATH 172	4
PHYSICS 201 or 205	4-5

Second Year

<i>First Term</i>	<i>Hours</i>
Biological Sciences [BSCI] with lab	4 <u>3</u>
Humanities [HUM]	3
MATH 220	2
MATH 273	2
PHYSICS 202 or 206	4-5
<u>PHYSICS 303</u>	<u>3</u>

<i>Second Term</i>	<i>Hours</i>
<u>ASTRONOM 390</u>	<u>1</u>
CPTS 124	4
<u>Creative and Professional Arts [ARTS]</u>	<u>3</u>
<u>Humanities [HUM]</u>	<u>3</u>
MATH 315	3
PHYSICS 303	3
<u>PHYSICS 304</u>	<u>3</u>
PHYSICS 330	3
Social Sciences [SSCI]	3
Complete Writing Portfolio	

Third Year*First Term**Hours*

ASTRONOM 390 4

ASTRONOM 345 3CPT S 121, E E 221, or MATH 300 2-4MATH Elective¹ 3~~PHYSICS 304~~ 3

PHYSICS 320 3

PHYSICS 341 3

~~UCORE or Elective~~ 3*Second Term**Hours*

ASTRONOM 435 or 436 3

ENGLISH 402 [WRTG] 3MATH Elective¹ 3

PHYSICS 342 3

~~PHYSICS 435~~ 3

PHYSICS 415 [M] 3

PHYSICS 499 1~~UCORE or Elective~~ 3**Fourth Year***First Term**Hours*Creative & Professional Arts [ARTS], Humanities [HUM],
or Social Sciences [SSCI] 3~~ENGLISH 402 [WRTG]~~ 3

PHYSICS 410 3

~~PHYSICS 412~~ 3~~PHYSICS 443~~ 3

PHYSICS 450 3

PHYSICS 490 [M] 1

Technical elective² 6*Second Term**Hours*ASTRONOM 435 or 436 3Integrative Capstone [CAPS] 3Diversity [DIVR] 3~~PHYSICS 461~~ 3

PHYSICS 499	14
<u>Technical Elective²</u>	<u>6</u>

Footnotes

- ¹ 6 hours of math electives must be chosen from MATH 3XX or MATH 4XX
- ² 12 hours of technical electives must include at least 6 hours from the upper division, and must be chosen from ASTRONOM, CHEM, MATH, or PHYSICS