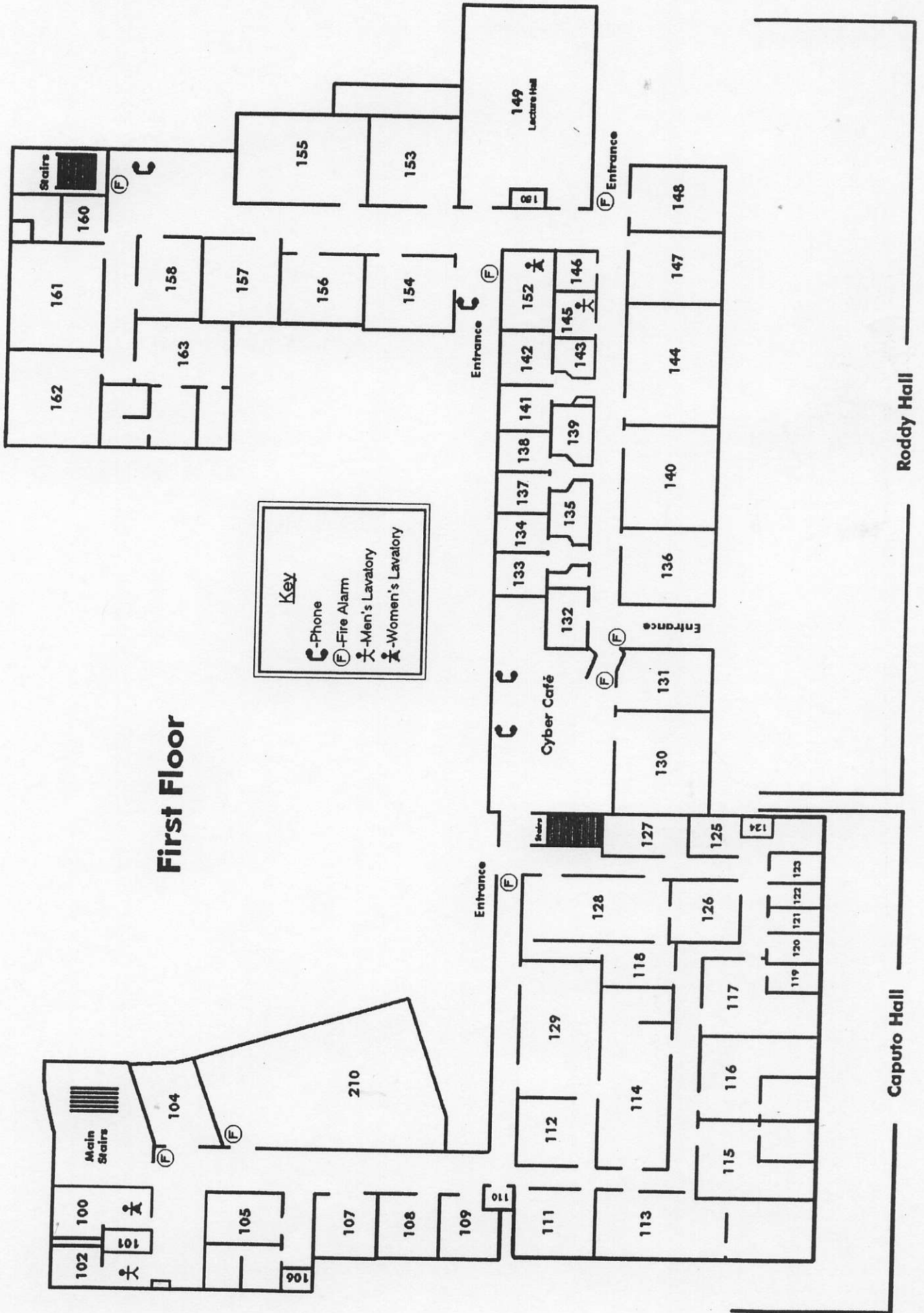


First Floor



Key

- ☎ Phone
- Ⓢ Fire Alarm
- ♂ Men's Lavatory
- ♀ Women's Lavatory

Roddy Hall

Caputo Hall

MILLERSVILLE UNIVERSITY
General Education Curriculum Guide (*Green Sheet*)

Student Name: _____

Student I.D. # _____

Critical Thinking Across the Liberal Arts (G1-G3)

General Guidelines:

- Only approved General Education (GenEd) courses may be used.
- Exactly two courses must be taken from at least one department within each G1, G2, and G3 block.
- At least three courses taken throughout blocks G1, G2 &/or G3 must be at the 200 level or above.
- Up to six "Required Related" courses may be counted toward GenEd requirements.
- Courses from the primary major may not fulfill the G1, G2, and G3 blocks; courses from a minor or secondary major may fulfill these blocks.

G1. Humanities and Fine Arts: Three courses minimum totaling at least 9 credit hours.

Select courses from: Art, Communications & Theatre, English, Foreign Language (which includes HUMN courses), Music or Philosophy. Students majoring in a Humanities & Fine Arts department may not count courses from the major department in this block.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>	<u>✓ 2 from 1 dept.</u>
<u>1.</u>	_____	_____	_____	_____
<u>2.</u>	_____	_____	_____	_____
<u>3.</u>	_____	_____	_____	_____

G2. Science and Mathematics: Three courses minimum totaling at least 9 credit hours.

Select courses from: Biology, Chemistry, Computer Science, Earth Sciences, Mathematics, Nursing or Physics. Students majoring in a Science or Mathematics department may not count courses from the major department in this block.

Additional Guidelines:

- At least two courses must be taken from the "natural sciences": Biology, Chemistry, Earth Sciences and Physics. This can be two courses from any one of these departments **OR** one course from any two of these departments.
- One course taken within the G2 block must be a Lab course.
- A math course in G2 may count along with the math course from Foundations in Lifelong Learning to satisfy the "two courses in one department" requirement for this block.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>	<u>✓ 2 from 1 dept.</u>	<u>✓ 2 from Natural Sci.</u>	<u>✓ 1 Lab Course</u>
<u>1.</u>	_____	_____	_____	_____	_____	_____
<u>2.</u>	_____	_____	_____	_____	_____	_____
<u>3.</u>	_____	_____	_____	_____	_____	_____

G3. Social Sciences: Three courses minimum totaling at least 9 credit hours.

Select courses from: African-American Studies, Anthropology, Business Administration, Economics, Geography, Government, History, International Studies, Occupational Safety & Environmental Health, Psychology, Sociology, Social Work/Gerontology, or Women's Studies. Students majoring in the Social Sciences areas may not count courses from their major department in this block.

Additional Guidelines:

- Sociology and Anthropology are considered separate in regard to the "2 from 1 department" requirement.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>	<u>✓ 2 from 1 dept.</u>
<u>1.</u>	_____	_____	_____	_____
<u>2.</u>	_____	_____	_____	_____
<u>3.</u>	_____	_____	_____	_____

Additional General Education Requirements

Foundations for Lifelong Learning (4 courses minimum 12 credit hours)

This category requires: **1. ENGL 110, 2. COMM 100, 3. GenEd (G2) approved Mathematics course (MATH 1XX), and 4. Advanced Writing (AW) course (ENGL 311, 312, 313, or 316).**

Guidelines:

- ENGL 110 must be completed with a grade of C- or better.
- COMM 100 must be completed with a grade of C- or better.
- The upper level writing (AW) course has a prerequisite of ENGL 110 (C- or better) and a minimum of 60 credit hours completed. Many majors recommend or require a specific AW course. Check the catalog for further details.
- G2 Math course must be different from that used towards the G2 block in the Liberal Arts Core.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>
1. ENGL 110	English Composition	3.0	_____
2. COMM 100	Fundamentals of Speech	3.0	_____
3. MATH	_____	_____	_____
4. ENGL	_____	_____	_____

Connections & Exploration Courses (minimum 12 credit hours)

Guidelines/Prerequisites:

1. **First-Year Inquiry (FYI) Seminar – UNIV 103 (3 credit hours) or Open Elective (3 credit hours)**
 - Open electives (including #4 below) must be 100 level or above and must be taken outside of primary major.
 - For BSE students, required professional education courses **cannot** count as open electives.
2. **Perspectives (P) Course (3 credit hours)**
 - Cannot be used to also fulfill a major requirement.
 - ENGL 110 and COMM 100 completed with grades of C- or better.
 - Minimum of 60 credit hours completed.
3. **Wellness/Health Education course (3 credit hours)**
 - Any WELL 175 course will fulfill this requirement.
 - Elementary Education or Elementary/Special Education major must take WELL 352.
4. **Open Elective (3 credit hours),** see #1 above for more information.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

Cultural Diversity & Community (D) Course

- May be satisfied with approved courses from the GenEd requirements (including Perspectives), the major, the minor, the required related area, or general electives.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>
1. _____	_____	_____	_____

Writing Intensive (W) Courses (4 courses)

Guidelines/Prerequisites:

- May be satisfied with approved courses from the GenEd requirements, the major, the minor, the required related area, or general electives.
- ENGL 110 must be completed with a grade of C- or better.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

Developmental Courses (COMM 010, ELED 090, ENGL 010, MATH 090)

These do not count toward the 120 credit hours required for graduation.

General Education Curriculum Guide (Beige Sheet)

Student Name: _____

Student I.D. # _____

Liberal Arts Core (36 Credit Hours) (G1-G3)

Guidelines:

1. Only courses approved for General Education (GenEd) may be used in the Liberal Arts Core.
2. In Block G2, students must take two courses from the "Natural Sciences" (Biology, Chemistry, Earth Science, and Physics). These two courses *do not* have to come from the same department but one must be a lab science.
3. Students must also take a GenEd Math course that can count in G2.
4. At least **three courses** taken throughout blocks G1, G2 &/or G3 must be **at the 200 level** or above.
5. Up to six "Required Related" courses may be counted toward GenEd requirements.
6. *Exactly* two courses must be taken from one department within G1, G2, and G3. No more than two courses can be taken from one department within G1, G2, or G3, but two courses from two different departments is acceptable.
7. Courses in a student's major discipline can not fulfill a Liberal Arts Core requirement; courses from the minor can fulfill a Liberal Arts Core requirement

G1. Humanities and Fine Arts: Four course minimum totaling at least 12 credit hours.

Select courses from: Art, Communications & Theatre, English, Foreign Language (which includes HUMN courses), Music, or Philosophy. Students majoring in a Humanities & Fine Arts department may not count courses from the major department in this block.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>	<u>1 dept.</u>
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____

✓2 from

G2. Science and Mathematics: Four course minimum totaling at least 12 credit hours.

Select courses from: Biology, Chemistry, Computer Science, Earth Sciences, Mathematics, Nursing or Physics. Students majoring in a Science or Math may not count courses from the major department in this block.

*NOTE: At least two courses must come from the following group: [BIOL, CHEM, ESCI, or PHYS]; this can be two classes from any one of these departments **OR** one class from two of these departments. The "two from one dept." requirement may be fulfilled from any one of the above 7 departments. One G2 course must be a Laboratory course.*

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>	<u>1 dept.</u>	<u>B,C,ES,P</u>
1. MATH*	_____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____

✓2 from

✓2 from

✓
} 1Lab
} □
)

* Except for MATH majors.

G3. Social Sciences: Four course minimum totaling at least 12 credit hours.

Select from: African-American Studies, Anthropology, Business, Economics, Geography, Government, History, International Studies, Occ. Safety & Environmental Health, Psychology, Sociology, Social Work/Gerontology or Women's Studies. Students majoring in one of these subject areas may not count courses from their major department in this block. Sociology and Anthropology are considered separate in regard to the "2 from 1 department" requirement; a student cannot take one course from each of these programs and count them as 2 from one department.

<u>Subject/Course#</u>	<u>Course Title</u>	<u>Cr. Hrs.</u>	<u>Grade</u>	<u>1 dept.</u>
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____

✓2 from

Additional University Requirements (15 Credit Hours) (G4)

G4. Additional General Education requirements: Five course minimum totaling at least 15 credit hours.

I. Fundamentals (6 Credit Hours) -- English 110 and Communications 100

ENGL 110 must be completed prior to junior year with a grade of "C-" or better; COMM 100 must be completed prior to graduation with a grade of "C-" or better.

Students with advanced background in these areas should consult the catalog for other options.

	<u>Cr. Hrs.</u>	<u>Grade</u>
1. ENGL 110 Composition	3.0	___
2. COMM 100 Fundamentals of Speech	3.0	___

II. Perspectives (P) Course (3 Credit Hours)

Choose any course from the list of approved Perspectives courses. This course cannot be taken until after completion of ENGL 110 (grade of "C-" or better) and 24 credit hours of the Liberal Arts Core (G1, G2, and G3).

A course used here cannot be used to also fulfill a major requirement.

<u>Subject/Course#</u>	<u>Title of Course</u>	<u>Cr. Hrs.</u>	<u>Grade</u>
1. _____	_____	___	___

III. Writing (W) Requirement (4 courses)

The Writing requirement may be satisfied with approved courses from the Liberal Arts Core, the student's major area, the required related area, or general electives. These courses cannot be taken until ENGL 110 is completed ("C-" or better).

<u>Subject/Course#</u>	<u>Title of Course</u>	<u>Cr. Hrs.</u>	<u>Grade</u>
1. _____	_____	___	*
2. _____	_____	___	*
3. _____	_____	___	*
4. _____	_____	___	*

*Do not double count credit hours for courses already taken by the student in G1,G2 or G3 or in Major.

IV. Upper Level Writing Requirement (3 Credit Hours)

Choose an upper-level writing course: ENGL 311, 312, 313, or 316. Please note that many majors strongly recommend or require a specific course. Check the catalog for further details.

Prerequisite: ENGL 110 (grade of C- or better) and a minimum of 60 cr. hrs.

<u>Subject/Course#</u>	<u>Title of Course</u>	<u>Cr. Hrs.</u>	<u>Grade</u>
1. ENGL _____	_____	___	___

V. Health /Physical Education Requirement - Dept. of Wellness & Sport Sciences. (3 Credit Hours)

Fulfill this requirement by taking WELL 175. Students repeating this course or have taken

HPED 170 or 175 will not receive an additional 3 credits regardless of topic.

Elem. Ed. & EIEd/SpEd. majors must take WELL 352.

<u>Subject/Course#</u>	<u>Title of Course</u>	<u>Cr. Hrs.</u>	<u>Grade</u>
1. WELL(HPED) _____	_____	___	___

VI. Developmental Courses

These do not count toward the 120 credit hours required for graduation. Developmental courses include COMM 010, ELED 090, ENGL 010 and MATH 090. (See HPED/WELL warning above.)

**BACHELOR OF SCIENCE IN PHYSICS
SAMPLE PROGRAM (120 s.h. minimum)**

FIRST SEMESTER

PHYS	198	Seminar	1.0
MATH	161	Calculus I	4.0
CHEM	111	Intro. Chemistry I	4.0
ENGL	110	English Composition	3.0
_____	_____	Open Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	15.0

SECOND SEMESTER

PHYS	231	Physics I w/Calculus	5.0
MATH	211	Calculus II	4.0
CHEM	112	Intro. Chemistry II	4.0
COMM	100	Fund. of Speech	<u>3.0</u>
		<i>TOTAL S.H.</i>	16.0

THIRD SEMESTER

PHYS	232	Physics II w/Calculus	5.0
MATH	311	Calculus III	4.0
WELL	175	Wellness	3.0
_____	_____	Hum./Soc. Science #1	<u>3.0</u>
		<i>TOTAL S.H.</i>	15.0

FOURTH SEMESTER

PHYS	233	Theory Wave/Particles	3.0
PHYS	266	Electronics	3.0
PHYS	334	Macro/Thermodynamic	3.0
MATH	365	Ord. Diff. Equations	3.0
_____	_____	Hum./Soc. Science #2	<u>3.0</u>
		<i>TOTAL S.H.</i>	15.0

FIFTH SEMESTER

PHYS	331	Optics	2.0
PHYS	335	Quantum/Statistical	3.0
PHYS	351	Intermediate Lab I	1.0
PHYS	311	Mechanics I	3.0
ENGL	312	Technical Writing	3.0
_____	_____	Perspectives Course	<u>3.0</u>
		<i>TOTAL S.H.</i>	15.0

SIXTH SEMESTER

* PHYS	312	Mechanics II	3.0
PHYS	321	ElectroMag. Fields I	3.0
PHYS	352	Intermediate Lab II	1.0
PHYS	395	Tech. of Math Physics	3.0
_____	_____	Hum./Soc. Science #3	3.0
_____	_____	Hum./Soc. Science #4	<u>3.0</u>
		<i>TOTAL S.H.</i>	16.0

SEVENTH SEMESTER

* PHYS	322	ElectroMag. Fields II	3.0
PHYS	451	Advanced Lab I	1.0
PHYS	492	Research & Seminar	2.0
** PHYS	4XX	Req. Physics Elective	3.0
MATH	_____	Req. 200+ Elective #1	3.0
_____	_____	Hum./Soc. Science #5	<u>3.0</u>
		<i>TOTAL S.H.</i>	15.0

EIGHTH SEMESTER

PHYS	498	Ind. Study/Research	1.0
** PHYS	4XX	Req. Physics Elective	3.0
PHYS	471	Quantum Mechanics	3.0
MATH	_____	Req. 200+ Elective #2	3.0
_____	_____	Hum./Soc. Science #6	3.0
_____	_____	Open Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	16.0

COMMENTS, NOTES OR RECOMMENDATIONS

This represents a close-to-minimum program for this major. Most students take additional free electives.

* Choose one of either PHYS 312 or PHYS 322. For students interested in pursuing a graduate career in physics, we strongly recommend taking both courses.

** Choose one 400 level physics elective from the list of approved courses—see Physics B.S. blue sheet.

1. In practice expect to select the 4 required writing (W) courses and the 1 required diversity (D) course from the 6 Humanities/Social Science courses.
2. The two open electives are used to satisfy the "Connections & Exploration Courses" general education requirements, #1 and #4 on the green sheet.

BACHELOR OF ARTS IN PHYSICS
SAMPLE PROGRAM (120 s.h. minimum)

FIRST SEMESTER

PHYS	198	Seminar	1.0
MATH	161	Calculus I	4.0
CHEM	111	Intro. Chemistry I	4.0
ENGL	110	English Composition	3.0
_____	_____	Open Elective	<u>3.0</u>
<i>TOTAL S.H.</i>			<i>15.0</i>

SECOND SEMESTER

PHYS	231	Physics I w/Calculus	5.0
MATH	211	Calculus II	4.0
CHEM	112	Intro. Chemistry II	4.0
COMM	100	Fund. of Speech	<u>3.0</u>
<i>TOTAL S.H.</i>			<i>16.0</i>

THIRD SEMESTER

PHYS	232	Physics II w/Calculus	5.0
MATH	311	Calculus III	4.0
WELL	175	Wellness	3.0
_____	_____	Hum./Soc. Science #1	<u>3.0</u>
<i>TOTAL S.H.</i>			<i>15.0</i>

FOURTH SEMESTER

PHYS	233	Theory Wave/Particles	3.0
PHYS	266	Electronics	3.0
PHYS	334	Macro/Thermodynamics	3.0
MATH	365	Ord. Diff. Equations	3.0
_____	_____	Hum./Soc. Science #2	<u>3.0</u>
<i>TOTAL S.H.</i>			<i>15.0</i>

FIFTH SEMESTER

PHYS	335	Quantum/Statistical	3.0
PHYS	351	Intermediate Lab I	1.0
PHYS	311	Mechanics I	3.0
ENGL	312	Technical Writing	3.0
_____	_____	Perspectives Course	3.0
_____	_____	Science 200+ Elective #1	<u>3.0</u>
<i>TOTAL S.H.</i>			<i>16.0</i>

SIXTH SEMESTER

PHYS	321	ElectroMag. Fields I	3.0
_____	_____	Hum./Soc. Science #3	3.0
_____	_____	Hum./Soc. Science #4	3.0
_____	_____	Free Elective	3.0
_____	_____	Science 200+ Elective #2	<u>3.0</u>
<i>TOTAL S.H.</i>			<i>15.0</i>

SEVENTH SEMESTER

PHYS	492	Research & Seminar	2.0
_____	_____	Science 200+ Elective #3	3.0
_____	_____	Free Elective	?0
_____	_____	Hum./Soc. Science #5	3.0
* FORL	_____	Elective	<u>3.0</u>
<i>TOTAL S.H.</i>			<i>11.0+</i>

EIGHTH SEMESTER

PHYS	498	Ind. Study/Research	1.0
_____	_____	Science 200+ Elective #4	3.0
_____	_____	Free Elective	?0
_____	_____	Hum./Soc. Science #6	3.0
_____	_____	Open Elective	3.0
* FORL	_____	Elective	<u>3.0</u>
<i>TOTAL S.H.</i>			<i>13.0+</i>

COMMENTS, NOTES OR RECOMMENDATIONS

* Competency required through the elementary level (FORL 101 and 102). Students who present two years of successful high school study in one language satisfy this requirement.

— Most B.A. majors take additional electives beyond the four required; the space in the 7th and 8th semesters reflects this reality.

— The four "Electives" selected must be approved by the student's advisor.

1. In practice expect to select the 4 required writing (W) courses and the 1 required diversity (D) course from the 6 Humanities/Social Science courses.

2. The two open electives are used to satisfy the "Connections & Exploration Courses" general education requirements, #1 and #4 on the green sheet.

**BACHELOR OF ARTS IN PHYSICS—COMPUTER SCIENCE OPTION
RECOMMENDED PROGRAM (120 s.h. minimum)**

FIRST SEMESTER

PHYS	198	Seminar	1.0
MATH	161	Calculus I	4.0
CHEM	111	Introductory Chemistry I	4.0
ENGL	110	English Composition	3.0
CSCI	140	Discrete Structures	<u>4.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

SECOND SEMESTER

PHYS	231	Physics I w/Calculus	5.0
MATH	211	Calculus II	4.0
CHEM	112	Introductory Chemistry II	4.0
CSCI	161	Intro to Computing I	<u>4.0</u>
		<i>TOTAL S.H.</i>	<i>17.0</i>

THIRD SEMESTER

COMM	100	Fundamentals of Speech	3.0
CSCI	162	Intro to Computing II	4.0
PHYS	232	Physics II w/Calculus	5.0
MATH	311	Calculus III	<u>4.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

FOURTH SEMESTER

PHYS	233	Modern Physics	3.0
CSCI	370	Computer Architecture	4.0
PHYS	334	Macro/Thermodynamics	3.0
MATH	365	Ord. Diff. Equations	3.0
_____	_____	Open Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

FIFTH SEMESTER

PHYS	311	Mechanics I	3.0
PHYS	335	Quantum/Statistical	3.0
PHYS	351	Intermediate Lab I	1.0
WELL	175	Wellness	3.0
_____	_____	Hum./Soc. Science #1	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>13.0</i>

SIXTH SEMESTER

CSCI	362	Data Structures	4.0
PHYS	321	Electromag Fields I	3.0
_____	_____	Hum./Soc. Science #2	3.0
_____	_____	Hum./Soc. Science #3	3.0
_____	_____	Hum./Soc. Science #4	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

SEVENTH SEMESTER

CSCI	_____	Elective	4.0
PHYS	492	Research/Seminar	2.0
_____	_____	Hum./Soc. Science #5	3.0
_____	_____	Hum./Soc. Science #6	3.0
** FORL	_____	Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>15.0</i>

EIGHTH SEMESTER

PHYS	498	Ind. Study/Research	1.0
_____	_____	Perspectives Course	3.0
ENGL	_____	Advanced Writing	3.0
_____	_____	Open Elective	3.0
** FORL	_____	Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>13.0</i>

COMMENTS, NOTES OR RECOMMENDATIONS

** Competency required through the elementary level (FORL 101 and 102). Students who present two years of successful high school study in one language satisfy this requirement.

1. In practice expect to select the 4 required writing (W) courses and the 1 required diversity (D) course from the 6 Humanities/Social Science courses.
2. The two open electives are used to satisfy the "Connections & Exploration Courses" general education requirements, #1 and #4 on the green sheet.

*** BACHELOR OF ARTS IN PHYSICS/COOPERATIVE ENGINEERING (3/2)
SAMPLE PROGRAM (120 s.h. minimum)**

FIRST SEMESTER				SECOND SEMESTER			
PHYS	198	Seminar	1.0	PHYS	231	Physics I W/Calculus	5.0
MATH	161	Calculus I	4.0	MATH	211	Calculus II	4.0
CHEM	111	Intro. Chemistry I	4.0	CHEM	112	Intro. Chemistry II	4.0
ENGL	110	English Composition	3.0	COMM	100	Fund. of Speech	<u>3.0</u>
_____	_____	Open Elective	<u>3.0</u>			<i>TOTAL S.H.</i>	<i>16.0</i>
			<i>TOTAL S.H.</i>				<i>15.0</i>
THIRD SEMESTER				FOURTH SEMESTER			
PHYS	232	Physics II w/Calculus	5.0	PHYS	233	Theory Wave/Particles	3.0
MATH	311	Calculus III	4.0	PHYS	266	Electronics	3.0
WELL	175	Wellness	3.0	PHYS	334	Macro/Thermodynamic	3.0
_____	_____	Hum./Soc. Science #1	3.0	MATH	365	Ord. Diff. Equations	3.0
_____	_____	Hum./Soc. Science #2	<u>3.0</u>	_____	_____	Hum./Soc. Science #3	<u>3.0</u>
			<i>TOTAL S.H.</i>				<i>TOTAL S.H.</i>
			<i>18.0</i>				<i>15.0</i>
FIFTH SEMESTER				SIXTH SEMESTER			
PHYS	335	Quantum/Statistical	3.0	PHYS	321	ElectroMag. Fields I	3.0
PHYS	351	Intermediate Lab I	1.0	PHYS	498	Ind. Study/Research	1.0
PHYS	311	Mechanics I	3.0	_____	_____	Hum./Soc. Science #4	3.0
PHYS	492	Research & Seminar	2.0	_____	_____	Hum./Soc. Science #5	3.0
ENGL	312	Technical Writing	3.0	_____	_____	Hum./Soc. Science #6	3.0
_____	_____	Perspectives Course	<u>3.0</u>	_____	_____	Open Elective	<u>3.0</u>
			<i>TOTAL S.H.</i>				<i>TOTAL S.H.</i>
			<i>15.0</i>				<i>16.0</i>

COMMENTS, NOTES OR RECOMMENDATIONS

* These students leave MU after their sixth semester to complete their degree program at a cooperating school of engineering. Upon completion of the BS degree in engineering at a cooperating university and presentation of the diploma to the registrar at MU, the student will receive credit for courses taken at the cooperating university sufficient to bring the total semester hours to the 120 minimum required for graduation from MU.

1. In practice expect to select the 4 required writing (W) courses and the 1 required diversity (D) course from the 6 Humanities/Social Science courses.
2. The two open electives are used to satisfy the "Connections & Exploration Courses" general education requirements, #1 and #4 on the green sheet.

**BACHELOR OF ARTS IN PHYSICS—METEOROLOGY OPTION
SAMPLE PROGRAM (120.0 s.h. minimum)**

FIRST SEMESTER

PHYS	198	Seminar	1.0
MATH	161	Calculus I	4.0
CHEM	111	Introductory Chemistry I	4.0
ENGL	110	English Composition	3.0
_____	_____	Open Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>15.0</i>

SECOND SEMESTER

PHYS	231	Physics I w/Calculus	5.0
MATH	211	Calculus II	4.0
CHEM	112	Introductory Chemistry II	4.0
COMM	100	Fundamentals of Speech	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

THIRD SEMESTER

PHYS	232	Physics II w/Calculus	5.0
MATH	311	Calculus III	4.0
WELL	175	Wellness	3.0
* ESCI	241	Meteorology	<u>4.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

FOURTH SEMESTER

PHYS	233	Theory Wave/Particles	3.0
PHYS	266	Electronics	3.0
PHYS	334	Macro/Thermodynamics	3.0
MATH	365	Ord. Diff. Equations	3.0
_____	_____	Hum./Soc. Science #1	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>15.0</i>

FIFTH SEMESTER

PHYS	311	Mechanics I	3.0
PHYS	335	Quantum/Statistical	3.0
PHYS	351	Intermediate Lab I	1.0
* ESCI	261	Intro to Oceanography	4.0
_____	_____	Hum./Soc. Science #2	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>14.0</i>

SIXTH SEMESTER

PHYS	321	Electromag Fields I	3.0
* ESCI	340	Phys. Meteorology	3.0
* ESCI	342	Atmos Dynamics I	3.0
_____	_____	Hum./Soc. Science #3	3.0
_____	_____	Hum./Soc. Science #4	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>15.0</i>

SEVENTH SEMESTER

PHYS	492	Research/Seminar	2.0
* ESCI	343	Atmos. Dynamics II	3.0
* ESCI	441	Syn. Meteor. Lec/Lab I	3.0
_____	_____	Hum./Soc. Science #5	3.0
_____	_____	Hum./Soc. Science #6	3.0
** FORL	_____	Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>17.0</i>

EIGHTH SEMESTER

PHYS	498	Ind. Study/Research	1.0
* ESCI	442	Syn. Meteor. Lec/Lab II	3.0
_____	_____	Perspectives Course	3.0
_____	_____	Advanced Writing	3.0
_____	_____	Open Elective	3.0
** FORL	_____	Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

COMMENTS, NOTES OR RECOMMENDATIONS:

* These courses fulfill the Minor in Meteorology (23.0 credits) which includes ESCI 241, 261, 340, 342, 343, 441, and 442. Substitution of ESCI 343 for ESCI 245 will be accepted by the Earth Science Department. [These courses also fulfill the minimum course requirements for employment by the National Weather Service.]

** Competency required through the elementary level (FORL 101 and 102). Students who present two years of successful high school student in one language satisfy this requirement.

1. In practice expect to select the 4 required writing (W) courses and the 1 required diversity (D) course from the 6 Humanities/Social Science courses.
2. The two open electives are used to satisfy the "Connections & Exploration Courses" general education requirements, #1 and #4 on the green sheet.

BACHELOR OF ARTS IN PHYSICS – NANOTECHNOLOGY OPTION
SAMPLE PROGRAM (120 s.h. minimum)

FIRST SEMESTER				SECOND SEMESTER			
PHYS	198	Seminar	1.0	PHYS	231	Physics I w/Calculus	5.0
MATH	161	Calculus I	4.0	MATH	211	Calculus II	4.0
CHEM	111	Intro. Chemistry I	4.0	CHEM	112	Intro. Chemistry II	4.0
ENGL	110	English Composition	3.0	COMM	100	Fund. of Speech	<u>3.0</u>
_____	_____	Open Elective	<u>3.0</u>			<i>TOTAL S.H.</i>	16.0
		<i>TOTAL S.H.</i>	15.0				
THIRD SEMESTER				FOURTH SEMESTER			
PHYS	232	Physics II w/Calculus	5.0	PHYS	233	Theory Wave/Particles	3.0
MATH	311	Calculus III	4.0	PHYS	266	Electronics	3.0
WELL	175	Wellness	3.0	PHYS	334	Macro/Thermodynamics	3.0
_____	_____	Hum./Soc. Science #1	<u>3.0</u>	MATH	365	Ord. Diff. Equations	3.0
		<i>TOTAL S.H.</i>	15.0	_____	_____	Hum./Soc. Science #2	<u>3.0</u>
						<i>TOTAL S.H.</i>	15.0
FIFTH SEMESTER				SIXTH SEMESTER			
PHYS	335	Quantum/Statistical	3.0	Semester at Penn State			
PHYS	351	Intermediate Lab I	1.0	Nanofabrication Facility			
PHYS	311	Mechanics I	3.0				
_____	_____	Hum./Soc. Science #3	3.0			<i>TOTAL S.H.</i>	18.0
_____	_____	Perspectives	<u>3.0</u>				
		<i>TOTAL S.H.</i>	13.0				
SEVENTH SEMESTER				EIGHTH SEMESTER			
PHYS	492	Research & Seminar	2.0	PHYS	498	Research & Seminar	1.0
PHYS	435*	Statistical Mechanics	3.0	PHYS	431**	Solid State Physics <u>or</u>	
ENGL	312	Technical Writing	3.0	PHYS	471**	Quantum Mechanics	3.0
_____	_____	Hum./Soc. Science #4	3.0	PHYS	321	ElectroMag. Fields I	3.0
_____	_____	Hum./Soc. Science #5	<u>3.0</u>	CHEM	302*	Chem. in Nanotech.	3.0
		<i>TOTAL S.H.</i>	14.0	_____	_____	Hum./Soc. Science #6	3.0
				_____	_____	Open Elective	<u>3.0</u>
						<i>TOTAL S.H.</i>	16.0

COMMENTS, NOTES OR RECOMMENDATIONS

— Two of the Humanities/Social Science courses will be FORL 101-102 unless foreign language competency is demonstrated.

* These courses are highly recommended but not required. If these two courses are taken, the total credits will be 122.

** Choose one of these two courses.

1. In practice expect to select the 4 required writing (W) courses and the 1 required diversity (D) course from the 6 Humanities/Social Science courses.
2. The two open electives are used to satisfy the "Connections & Exploration Courses" general education requirements, #1 and #4 on the green sheet.

**BACHELOR OF ARTS IN PHYSICS—PHILOSOPHY OPTION
SAMPLE PROGRAM (120 s.h. minimum)**

FIRST SEMESTER

PHYS	198	Seminar	1.0
MATH	161	Calculus I	4.0
CHEM	111	Introductory Chemistry I	4.0
ENGL	110	English Composition	3.0
_____	_____	Open Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>15.0</i>

SECOND SEMESTER

PHYS	231	Physics I w/Calculus	5.0
MATH	211	Calculus II	4.0
CHEM	112	Introductory Chemistry II	4.0
COMM	100	Fundamentals of Speech	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

THIRD SEMESTER

PHYS	232	Physics II w/Calculus	5.0
MATH	311	Calculus III	4.0
PHIL	321	Ancient Philosophy	3.0
WELL	175	Wellness	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>15.0</i>

FOURTH SEMESTER

PHYS	233	Theory Wave/Particles	3.0
PHYS	266	Electronics	3.0
PHYS	334	Macro/Thermodynamics	3.0
MATH	365	Ord. Diff. Equations	3.0
PHIL	322	Modern Philosophy	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>15.0</i>

FIFTH SEMESTER

PHYS	311	Mechanics I	3.0
PHYS	335	Quantum/Statistical	3.0
PHYS	351	Intermediate Lab I	1.0
PHIL	312	Mathematical Logic	3.0
_____	_____	Hum./Soc. Science #1	3.0
_____	_____	Perspectives Course	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

SIXTH SEMESTER

PHYS	321	Electromag Fields I	3.0
PHIL	328	Philosophical Classics	3.0 or
PHIL	371	Philosophy Workshop	3.0
_____	_____	Hum./Soc. Science #2	3.0
_____	_____	Hum./Soc. Science #3	3.0
_____	_____	Hum./Soc. Science #4	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>15.0</i>

SEVENTH SEMESTER

* PHYS	435	Statistical Mechanics	3.0
PHYS	492	Research/Seminar	2.0
PHIL	_____	Elective	3.0
_____	_____	Hum./Soc. Science #5	3.0
_____	_____	Hum./Soc. Science #6	3.0
** FORL	_____	Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>17.0</i>

EIGHTH SEMESTER

PHYS	498	Ind. Study/Research	1.0
PHIL	314	Philosophy of Science	3.0
* PHYS	471	Quantum Mechanics	3.0
_____	_____	Advanced Writing	3.0
_____	_____	Open Elective	3.0
** FORL	_____	Elective	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>16.0</i>

COMMENTS, NOTES OR RECOMMENDATIONS:

* Choose one of these two courses.

** Competency required through the elementary level (FORL 101 and 102). Students who present two years of successful high school study in one language satisfy this requirement.

1. In practice expect to select the 4 required writing (W) courses and the 1 required diversity (D) course from the 6 Humanities/Social Science courses.
2. The two open electives are used to satisfy the "Connections & Exploration Courses" general education requirements, #1 and #4 on the green sheet.

**BACHELOR OF ARTS IN PHYSICS—POLYMER CHEMISTRY OPTION
SAMPLE PROGRAM (120 s.h. minimum)**

FIRST SEMESTER				SECOND SEMESTER			
PHYS	198	Seminar	1.0	PHYS	231	Physics I w/Calculus	5.0
MATH	161	Calculus I	4.0	MATH	211	Calculus II	4.0
CHEM	111	Intro. Chemistry I	4.0	CHEM	112	Intro. Chemistry II	4.0
ENGL	110	English Composition	3.0	COMM	100	Fund. of Speech	<u>3.0</u>
_____	_____	Open Elective	<u>3.0</u>			<i>TOTAL S.H.</i>	<i>16.0</i>
		<i>TOTAL S.H.</i>	<i>15.0</i>				
THIRD SEMESTER				FOURTH SEMESTER			
PHYS	232	Physics II w/Calculus	5.0	PHYS	233	Theory Wave/Particles	3.0
MATH	311	Calculus III	4.0	PHYS	266	Electronics	3.0
_____	_____	Hum./Soc. Science #1	3.0	PHYS	334	Macro/Thermodynamics	3.0
_____	_____	Elective	<u>3.0</u>	MATH	365	Ord. Diff. Equations	3.0
		<i>TOTAL S.H.</i>	<i>15.0</i>	WELL	175	Wellness	<u>3.0</u>
						<i>TOTAL S.H.</i>	<i>15.0</i>
FIFTH SEMESTER				SIXTH SEMESTER			
PHYS	311	Mechanics I	3.0	PHYS	321	ElectroMag. Fields I	3.0
PHYS	335	Quantum/Statistical	3.0	_____	_____	Elective	3.0
PHYS	351	Intermediate Lab I	1.0	_____	_____	Elective	3.0
CHEM	235	Organic Chemistry	4.0	_____	_____	Hum./Soc. Science #3	3.0
_____	_____	Hum./Soc. Science #2	<u>3.0</u>	_____	_____	Hum./Soc. Science #4	<u>3.0</u>
		<i>TOTAL S.H.</i>	<i>14.0</i>			<i>TOTAL S.H.</i>	<i>15.0</i>
SEVENTH SEMESTER				EIGHTH SEMESTER			
PHYS	492	Research & Seminar	2.0	PHYS	498	Ind. Study/Research	1.0
CHEM	381	Polymer Chemistry	4.0	CHEM	482	Polymer Phys. Chemistry	3.0
* FORL	_____	Elective	3.0	* FORL	_____	Elective	3.0
_____	_____	Hum./Soc. Science #5	3.0	_____	_____	Perspectives Course	3.0
_____	_____	Hum./Soc. Science #6	<u>3.0</u>	_____	_____	Advanced Writing	3.0
		<i>TOTAL S.H.</i>	<i>15.0</i>	_____	_____	Open Elective	<u>3.0</u>
						<i>TOTAL S.H.</i>	<i>16.0</i>

COMMENTS, NOTES OR RECOMMENDATIONS

*Competency required through the elementary level (FORL 100 and 102). Students who present two years of successful high school study in one language satisfy this requirement.

1. In practice expect to select the 4 required writing (W) courses and the 1 required diversity (D) course from the 6 Humanities/Social Science courses.
2. The two open electives are used to satisfy the "Connections & Exploration Courses" general education requirements, #1 and #4 on the green sheet.

