

Undergraduate Major in Wildlife and Fisheries Sciences
 Graduation Requirement - 128 credits – Started at SDSU Summer 2009, Fall 2009, Spring 2010
 Student is responsible for requirements in the 2009-2010 Bulletin.

Name _____ Home Town and State _____ Date Entered _____
First M.I. Last
 Transfer from _____ Transfer Hours _____ Bulletin Year 2009-2010

System General Education Requirements (SGRs) (30 semester credits)

This 7 goal, 30-credit System General Education core must be completed in the first 64 credits of a student’s academic career. Approved course lists are available in the 2009-2010 Bulletin and the Fall 2009 Course Schedule. For transfer students this System General Education core must be completed as soon as possible after starting at SDSU. In addition, students must take the proficiency examination after completing 48 credits. One course in each of the System General Education areas (Goals 1 through 6) (18 hours) must be passed prior to taking the examination. Transfer students who transfer more than 18 hours must complete proficiency courses in first 30 credit hours at SDSU. The following System General Education core listing is designed for Wildlife and Fisheries Sciences majors.

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|--|--|
| Composition I, ENGL 101 (Goal 1).....3 () | College Algebra, MATH 102 (Goal 5) |
| Composition II, ENGL 201 (Goal 1).....3 () | (Other MATH courses meeting this requirement 104, 115, 120, 121, 123, 125, |
| Fundamentals of Speech, SPCM 101 (Goal 2)3 () | 225, 281.).....3 () |
| Social Sciences/Diversity (6 hrs) (Goal 3) (From BOR General Education System Requirements. Must be from two disciplines.) | Students are placed in MATH when they start at SDSU. No credit is received for remedial math courses. Credit is received for MATH 101. |
| _____.....3 () | Starting in Spring 2006 students who take MATH 101 must obtain a “C” or better before they can take MATH 102. |
| _____.....3 () | BIOL 101-101L (or BIOL 151-151L) (Goal 6)..... 3 or 4 () |
| Humanities and Arts/Diversity (6 hrs) (Goal 4) (From BOR General Education System Requirements. Must be from two disciplines or a sequence of foreign language courses.) | BIOL 103-103L (or BIOL 153-153L) (Goal 6)..... 3 or 4 () |
| _____.....3 () | Information Literacy (Goal 7) 0 Credit (Met in Goals 1 and 2) (X) |
| _____.....3 () | |

SDSU Institutional Graduation Requirements (IGRs) (8 semester credits)

This 8-credit SDSU core consists of three goals. See the 2009-2010 Bulletin for a list of courses that meet these requirements. An “X” indicates that the Goal is met with Department requirements.

- | | |
|--|---------|
| Land and Natural Resources (Goal 1) (Requirement met by BIOL 311)..... | 3 (X) |
| Personal Wellness (Goal 2) - GS 143 is recommended (See the 2009-2010 Bulletin for other courses that meet this goal)..... | 2 () |
| Social Responsibility/Cultural and Aesthetic Awareness (Goal 3) (Requirement met by WL 430-430L)..... | 3 (X) |

Additional General Education Requirements

Globalization Requirement

(Requirement met by WL 430-430L) (X)

Advanced Writing Requirement

(Requirement met by ABS 475-475L) (X)

For important information on advisee and advisor responsibilities go to the Department’s Home Page (<http://wfs.sdstate.edu>). At the Home Page go to Undergraduate Information, then go to Advising.

Department Requirements

Letters in parentheses after course number indicates whether the course is usually offered in fall (F), spring (S), or both (B) semesters. (All by semester offering information is subject to change.) AYE or AYO indicates that the course is offered in alternate even or odd years.

Communications (5-6 credits)

One of the following Written Communications courses

- Technical Communications, ENGL 379 (B)3 ()
- Basic Newswriting, MCOM 210-210L (B).....3 ()
- Publicity Methods, MCOM 313 (S).....2 ()
- Magazine Writing and Editing, MCOM 316 (B).....3 ()
- Writing for Electronic Media, MCOM 330-330L (B).3 ()

One of the following Oral Communication courses

- Interpersonal Communication, SPCM 201 (B)3 ()
- ¹Public Speaking, SPCM 215 (B)3 ()
- Argumentation and Debate, SPCM 222 (S).....3 ()
- Small Group Communication, SPCM 434 (S).....3 ()
- ¹Recommended

Mathematics (7-8 credits)

- Survey of Calculus, MATH 121-121L (B)5 ()
- or Calculus I, MATH 123 (B).....4 ()
- Introduction to Statistics, STAT 281 (B)3 ()

Computer Science (2-4 credits) (Any course prefixed Computer Science)

- CSC 105 (3 hrs) (B) is recommended 2-4 ()

Physical Sciences (15-16 credits) (See advisor about options)

- General Chemistry I, CHEM 112-112L (B).....4 ()
- Elementary Organic Chemistry, CHEM 120-120L (B).....4 ()
- Survey of Physics, PHYS 101-101L (B).....4 ()
- or Introduction to Physics I, PHYS 111-111L (B)
- A Soils or Geology Course or an Additional Chemistry
- or Physics Course
- _____ 3 or 4 ()

Elective Courses

- _____ ()
- _____ ()
- _____ ()
- _____ ()
- _____ ()
- _____ ()
- _____ ()

General Biology (9-10 credits)

- Principles of Ecology, BIOL 311 (F)3 ()
- Genetics, BIOL 371 (B)3 ()

Biological Science Elective (Select one of the following.)

- BIOL 325-325L Physiology (4); BIOL 373 Evolution (3); BIOL 440-440L Restoration Ecology (4); BOT 327-327L Plant Physiology (4); MICR 231-231L General Microbiology (4); PS 305-305L Insect Biology (3); VET 223-223L Anat. & Physiol. of Domestic Animals (4); VET 403 Ani. Diseases and Their Control (3); **WL 370-307L Limnology (3); WL 400 Applied Habitat Mgt. (3); ZOOLOGY 302 Animal Behavior (3)**
- (S, AYE); or ZOOLOGY 467-467L Parasitology (3).....3 or 4 ()

Botany (6-8 credits) (Select a minimum of two courses) (See Page 3)

- ¹Plant Systematics, BOT 301-301L (S).....4 ()
- ¹Grasses and Grasslike Plants, BOT 405-405L (F).....3 ()
- Plant Ecology, BOT 419-419L (F).....4 ()
- ²Forest Ecology and Management, BOT 303-303L (F)3 ()
- ¹Must take at least one of these two courses.
- ²Crosslisted with PR 303-303L – our majors should take the BOT prefix.

Vertebrate Biology (10 credits)

- Ornithology, WL 363-363L (S).....4 ()
- Ichthyology, WL 367-367L (F)3 ()
- Mammalogy, ZOOLOGY 355-355L (F)3 ()

Wildlife and Fisheries Sciences (22 credits)

- Intro. to Wildlife and Fisheries, WL 220 (F)3 ()
- Wildl. and Fish. Techniques, WL 230 (S)3 ()
- Prin. of Wildlife Management, WL 411-411L (F).....4 ()
- Prin. of Fisheries Management, WL 412-412L (S).....3 ()
- Human Dimen. in Wildl. and Fish., WL 430-430L (S)4 ()
- Integrated Nat. Res. Manage., ABS 475-475L (S).....3 ()
- Undergraduate Seminar, WL 490 (F) (Soph).....1 ()
- Undergraduate Seminar, WL 490 (S) (Senior).....1 ()

Other Wildlife and Fisheries Sci. Courses (not required)

- Limnology, WL 370-370L (F) (AYE).....3 ()
- Applied Habitat Management, WL 400 (S) (AYE)3 ()
- Fish. and Wildl. Biometrics, WL 440-440L (S).....2 ()

IMPORTANT CURRICULAR INFORMATION

1. Students must know what coursework is required to complete a Wildlife and Fisheries Sciences degree and why that coursework is a requirement. You have an advisor in the Department, but final responsibility for correct academic progression lies with **both** the student and the advisor. Pages 1 and 2 of this handout list the courses required of you. You need to know these requirements and track your own progress – that is why this handout is provided. You should always be aware of what you have taken, what you still need to take, and when you need to take particular courses. Starting with your Junior year you should plan your remaining semesters of coursework so that alternate-year, semester-specific, and sequential courses can be correctly accommodated. The Sample Schedules by Semester section on Page 5 will help you in this task. Take your plan and this handout with you when you see your advisor.

2. The American Fisheries Society (AFS) does **not** count “D”s in courses **they require for certification**. You can complete our degree requirements with “D”s, but they will not meet AFS standards. Most states at this time do not require AFS certification for their fisheries positions. However, some states, while not requiring AFS certification, follow AFS course and grade requirements. For example, Minnesota does not require AFS certification, but does follow AFS course and grade requirements; thus, Minnesota does **not** accept “D”s in courses required for minimum qualifications for their fisheries positions.

3. Botany requirements continue to be an issue for some students. Our curriculum requires you to take two botany courses and two semesters of introductory biology. The Wildlife Society (TWS) certification requires 9 semester hours of Botany. Our curriculum meets those TWS requirements with students taking BOT 301-301L and/or BOT 405-405L, BOT 419-419L or BOT 303-303L, and using one/half (3 semester hours) of the credit received in BIOL 101-101L and BIOL 103-103L. This should also meet the Botany requirements listed for GS-485 (Wildlife Refuge Management Series) and GS-486 (Wildlife Biology Series). However, federal raters in different parts of the country interpret this requirement differently. **Some** federal raters will only count courses toward the GS-485 and GS-486 series if the course is prefixed Botany; for example, they will not use BIOL 101-101L/BIOL 103-103L for partial credit. GS-485 has a stated requirement of 9 semester hours in Botany; GS-486 has a stated requirement of 9 semester hours in Botany or related plant sciences. If you wish to ensure that **all** federal raters grade you as meeting the Botany requirements for GS-485 and GS-486, you should take 9 semester hours specifically prefixed Botany. Taking BOT 301-301L or BOT 405-405L, BOT 419-419L, and another Botany course (such as BOT 201-201L or BOT 303-303L) will meet the Botany requirements for **all** federal raters. **You** must decide if you wish to use elective hours for this purpose.

4. Students who transfer from other colleges and universities into our program should be especially careful about curricular planning. Often transfer students are allowed substitutions for some of our required courses. This may impact your meeting some certification and GS requirements. Transfers must be aware of certification and GS requirements and plan accordingly. This is primarily **your** responsibility because each transfer student is different and advisors will have difficulty tracking your particular situation.

Associate Fisheries Scientist

Academic requirements for certification by the American Fisheries Society (AFS). **SDSU's basic curriculum meets all of the requirements.** SDSU courses that address the requirements are shown in parentheses – only courses needed to meet minimum requirements are shown. All hours are semester hours. **Only grades of C or better count for AFS certification** (see Page 3). Go to the AFS homepage for more specific information on certification.

1. Fisheries and aquatics courses – 12 hrs. (WL 220, WL 230, WL 367-367L, WL 412-412L)
 2. Other biological science courses that total 30 hrs. when added to the above courses (BIOL 101-101L, BIOL 103-103L, BIOL 311, WL 363-363L, ZOOL 355-355L, WL 411-411L)
 3. Physical science courses – 15 hrs. (CHEM 112-112L, CHEM 120-120L, PHYS 101-101L, and Physical Science Elective)
 4. Math and statistics courses – 6 hrs. (MATH 121-121L, STAT 281)
 5. Communications courses – 9 hrs. (Department requires 14 to 15 hrs.)
 6. Human dimensions courses – 6 hrs. (WL 430-430L, ABS 475-475L)
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Federal General Schedule (GS) Series

The following General Schedule (GS) 400 Series (Biological Science) are ones that Wildlife and Fisheries Sciences majors qualify for with our basic requirements or can be met with some minimal additional coursework. Students can search the worldwide web, using something like Google, to ascertain specific course requirements for each series. Search for GS-(number) to do this. You need to be aware of what is required for each. This is your responsibility.

GS-401 General Biological Science
GS-404 Biological Science Technician
GS-408 Ecology Series (9 hrs. of ecology required)
GS-410 Zoology
GS-458 Soil Conservation Technician
GS-480 Fish and Wildlife Administration
GS-482 Fishery Biology
GS-485 Wildlife Refuge Management (See page 3)
GS-486 Wildlife Biology (See page 3)

Associate Wildlife Biologist

Academic requirements for certification by The Wildlife Society (TWS). **SDSU's basic curriculum meets all of the requirements.** SDSU courses that address the requirements are shown in parentheses – only courses needed to meet minimum requirements are shown. All hours are semester hours. Go to the TWS homepage for more specific information on certification.

1. Biological Science – 36 total hrs.
 - a. Wildlife Management – 6 hrs. (WL 220, WL 230, WL 411-411L)
 - b. Wildlife Biology – 6 hrs. (WL 363-363L, ZOOL 355-355L)
 - c. Ecology – 3 hrs. (BIOL 311)
 - d. Zoology – 9 hrs. (BIOL 371, WL 367-367L, BIOL 101-101L – 1.5 hrs., BIOL 103-103L – 1.5 hrs.)
 - e. Botany – 9 hrs. (BIOL 101-101L – 1.5 hrs., BIOL 103-103L – 1.5 hrs., BOT requirements 6-8 hrs.) (One course must deal with plant taxonomy or identification.)
 2. Physical Science – 9 hrs. in two disciplines (CHEM 112-112L, CHEM 120-120L, PHYS 101-101L)
 3. Quantitative Science – 9 hrs.
 - a. Basic Statistics – 3 hrs. (STAT 281)
 - b. Quantitative Science – 6 hrs. (MATH 121-121L, CSC 105)
 4. Humanities and Social Sciences – 9 hrs. (SDSU requires 15 hrs.)
 5. Communications – 12 hrs. (Department requires 14 to 15 hrs.)
 6. Policy, Administration, and Law – 6 hrs. (WL 430-430L, ABS 475-475L)
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SUGGESTIONS FOR USE OF ELECTIVE HOURS

Students can most effectively use elective hours if they are either directed toward a minor or clustered into specific areas. The Wildlife and Fisheries Sciences curriculum has a limited number of elective hours and hours available vary from student to student depending on specific courses taken.

Selected Potential Minors

(See the Bulletin for which you are responsible for course requirements.)

| | |
|------------------------------------|--|
| Botany (18 credits) | Criminal Justice (18 credits) |
| Chemistry (20 credits) | Geographic Information Sci. (18 credits) |
| Communication Studies (20 credits) | Journalism (16 credits) |
| Computer Science (21 credits) | Range Science (18 credits) |

If a student decides to minor in an area they should make that decision as early as possible. Numerous minors have overlapping requirements with some courses that fulfill areas needed by Wildlife and Fisheries Sciences majors. Because of the limited number of elective hours available to our students, having a minor may result in an extra semester to complete a B.S. degree. See your academic advisor for curriculum planning.

Selected Clusters and Other Potential Elective Courses¹

(Some listed courses have prerequisites.)

| | |
|--|--|
| BIOL 383 - Bioethics | GEOG 489 - Geographic Info. Sys. III |
| BIOL 446 - Environ. Toxicology | LA 201 - Intro. to Landscape Design |
| BOT 201 - General Botany | MCOM 475 - Public Relations |
| BOT 412 - Morph. of Non-Vas. Plants | ² PHIL 200 - Intro. to Logic |
| BOT 413 - Morph. of Vas. Plants | ² PHIL 220 - Intro. to Ethics |
| CEE 333 - Hydrology | PHIL 454 - Environmental Ethics |
| ² CJUS 201 - Intro. to Criminal Justice | PRM 101 - Parks & Society |
| CJUS 331 - Civic Rights and Liberties | PS 213-213L - Soils |
| CJUS 412 - Crim. Pros. & Defense | PS 343-344 - Geology |
| CJUS 431 - Criminal Law | RANG 105 - Intro. to Range Mgt. |
| CJUS 433 - Criminal Procedure | RANG 210 - Range Plant Iden. |
| CSC 150 - Computer Science I | RANG 321 - Wildland Ecosystems |
| CSC 205 - Advanced Computer Applic. | RANG 325 - Measurement Topics |
| CSC 241 - Computer Logic | RANG 415 - Range Imp. & Gr. Mgt. |
| CSC 250 - Computer Science II | SOC 351 - Criminology |
| ² ECON 101 - Global Economics | STAT 210 - Introduction to SAS |
| ² ECON 202 - Princ. Macroeconomics | STAT 410 - Programming Using SAS |
| ECON 472 - Resource & Environ. Econ. | STAT 441 - Statistical Methods II |
| ENVM 275 - Intro. to Environ. Science | STAT 442 - Analysis Variance & Regre. |
| ENVM 425 - Disturbance Ecology | STAT 445 - Nonparametric Statistics |
| GEOG 487 - Geographic Info. Sys. I | WL 110 - Environmental Conservation |
| GEOG 488 - Geographic Info. Sys. II | ZOOL 302 - Animal Behavior |

¹Courses not used to meet the listed Department Biological Science Elective, Botany, or Communications requirements are also excellent elective courses.

²Course also meets Social Sciences/Diversity or Humanities and Arts/Diversity SGR requirements.

SAMPLE SCHEDULES BY SEMESTER

Particular attention should be paid to the courses in **bold**. **They are only offered once a year (or every other year) and are only offered in the semester indicated.** Students should also recognize that many courses have prerequisite courses. These sample schedules put courses with prerequisites in correct sequence. **Prerequisites are in parentheses.** General elections are not included. (128 hours required)

| 1 st Year | |
|--|--|
| <u>Fall Semester</u> | <u>Spring Semester</u> |
| WL 220 Intro WL&F | WL 230 Techniques (WL 220) |
| ENGL 101 or SPCM 101 | ENGL 101 or SPCM 101 |
| BIOL 101-101L | BIOL 103-103L (BIOL 101-101L) |
| ¹ MATH 102 | Humanities Elective |
| GS 143 | Social Sciences Elective |
| 2 nd Year | |
| <u>Fall Semester</u> | <u>Spring Semester</u> |
| WL 490 Soph Seminar | MATH 121-121L |
| BIOL 311 Ecology | STAT 281 (MATH 102 or higher) |
| ENGL 201 (ENGL 101) | Social Sciences Elective |
| Humanities Elective | CHEM 120-120L (CHEM 112-112L) |
| CHEM 112-112L (MATH 102 or higher) | Communications Elective |
| CSC 105 | |
| 3 rd Year | |
| <u>Fall Semester</u> | <u>Spring Semester</u> |
| WL 367-367L Ichthyology | WL 363-363L Ornithology |
| ZOOL 355-355L Mammalogy | WL 412-412L Fish Mgt (WL 367) |
| ² Botany Elective | ³ WL 400 Wildl Hab Mgt |
| PHYS 101-101L | (WL 220 and 230) |
| Communications Elective | ² BOT Elective |
| | ⁴ BIOL 371 Genetics |
| 4 th Year | |
| <u>Fall Semester</u> | <u>Spring Semester</u> |
| ⁵ WL 370-370L Limnology (CHEM) | ABS 475-475L Int. Nat. Res. |
| WL 411-411L Wildl Mgt | Mgt. (Seniors) |
| (WL 363, ZOOL 355) | WL 430-430L Human Dimensions |
| Physical Science Elective | WL 490 Senior Seminar |

¹Depends on Math placement.

²Do not postpone Botany courses, especially BOT 301-301L or BOT 405-405L, until your Senior year – you will have problems with scheduling.

³Only offered in Spring of even numbered years. Can also be taken as Senior. One of numerous Biological Science course options. (See page 2.)

⁴BIOL 371 (Genetics) – take as Junior or Senior, preferably as a Junior.

⁵Only offered in Fall of even numbered years. Can also be taken as Junior. One of numerous Biological Science course options. (See page 2.)