

**Program: Bachelor of Science: Biology- Radiography Option**

|   | Fall Semester  |                  |   | Spring Semester   |                    |                 |
|---|--|------------------|---|---|--------------------|-----------------|
|   | Course   | Requirement Met  | SH  | Course  | Requirement Met    | SH              |
| <b>Year 1</b>   | BIOL 241 Basics of Life  | GE Goal 3        | 4   | BIOL 308 Cell Biology (Writing Flag) or BIOL 310 Genetics (Critical Analysis Flag)* | Major              | 3               |
|   | MATH 117 Pre-Calculus with Modeling or higher                                      | GE Goal 4        | 4   | CMST 191 Intro to Public Speaking or CMST 192 Introduction to Speech Communication  | GE Goal 1          | 3               |
|   | ENG 111 College Reading & Writing  | GE Goal 1        | 4   | General Education Elective **   | Goal 5-8, 10       | 3               |
|   | General Education Elective *   | Goal 5-8, 10     | 3   | General Education Elective **   | Goal 5-8, 10       | 3               |
|   | OR 100 Orientation   | General Elective | 1   | CHEM 212 Principles of Chemistry I or CHEM 210 General Organic & Biochemistry       | GE Goal 3          | 4 or 5          |
|   | Physical Education Elective  | GE               | 1   |   |                    |                 |
|   |  |                  | <b>17</b>   |   |                    | <b>16 or 17</b> |
| *Choose general electives that meet 2 goal areas (5 - 8, 10). |  |                  | * Both BIOL 308 and BIOL 310 are offered online during summer sessions. **Choose general electives that meet 2 goal areas (5 - 8, 10).  |   |                    |                 |
| <b>Year 2</b>   | BIOL 322 Human Anatomy or BIOL 211 Anatomy & Physiology I                          | Major            | 4   | BIOL 323 General Physiology or BIOL 212 Anatomy & Physiology II                     | Major              | 4               |
|   | PHYS 201 General Physics I   | Major            | 4   | BIOL 309 Developmental Biology (oral flag)  | Major              | 3               |
|   | PHIL 330 Biomedical Ethics or PHIL 130 Moral Problems or PHIL 230 Ethics           | Goals 6a and 9   | 3   | Writing Flag: NURS 367 Writing for Research or ENG 439 Technical Writing*           | Major              | 3               |
|   | General Education Elective *   | Goal 5-8, 10     | 3   | General Education Elective**  | Goal 5-8, 10       | 3               |
|   | BIOL 308 Cell Biology (Writing Flag) or BIOL 310 Genetics (Critical Analysis Flag) | Major            | 3   | General Education Elective**  | Goal 5-8, 10       | 3               |
|   |  |                  |   | BIOL 171-173 Medical Terminology A, B, or C   | General Elective   | 1               |
|   |  |                  |   | Physical Education Elective   | GE                 | 1               |
|   |  | <b>17</b>        |   |   | <b>18</b>          |                 |
| *Choose general electives that meet 2 goal areas (5 - 8, 10). |  |                  | * For writing flag requirements, students may opt to complete ENG 439 Technical Writing (also offered summer session.) Students opting for ENG 439 in summer should complete it summer between year 1 and 2 because the Mayo program begins in June. **Choose general electives that meet 2 goal areas (5 - 8, 10). |   | <b>WSU Credits</b> | <b>67</b>       |

**Mayo Radiography Program (18 months)**

|  |                |           |
|--|----------------|-----------|
| Summer Semester I : Clinical Radiography I   | Major          | 6         |
| Fall Semester II: Clinical Radiography II    | Major          | 14        |
| Spring Semester III Clinical Radiography III | Major          | 13        |
| Summer Semester IV: Clinical Radiography IV  | Major          | 7         |
| Fall Semester V: Clinical Radiography V      | Major          | 13        |
| <b>Mayo Clinic School of Health Sciences</b> | <b>Credits</b> | <b>53</b> |

**WSU Flags**

Critical analysis (3) BIOL 310 Genetics  
 Oral flag (3) BIOL 309 Dev Biology  
 Writing intensive ( 6) BIOL 308 Cell Biology & NURS 367 Writing for Research or ENG 439 Technical Writing

### **Additional Requirements for Biology - Radiography Option**

- 1 Alternative enrollment in Biology—Allied Health or Cell Molecular option also fulfills the necessary prerequisites.
- 2 Prerequisite courses must be completed within six years; all WSU courses must be completed prior to starting the Radiography program at Mayo Clinic School of Health Sciences.
- 3 Students must maintain a cumulative GPA of 2.75 or higher; a cumulative GPA of 3.0 or higher is competitive.  
  
Patient care experience and certification is strongly recommended for admission into the Radiography program at Mayo. Consider among the following certifications: Certified Nursing Assistant (C.N.A.), Registered Medical Assistant (C.M.A.), or Emergency Medical Technician (E.M.T.). Internships involving direct patient care are also highly encouraged.
- 4
- 5 Job shadowing in radiography is required.
- 6 Immunizations and TB test must be current. Students must carry health insurance.
- 7 Completion of this degree requires that students are accepted into the Radiography program at Mayo. Students should have an alternate major in mind in the event that they are not accepted into the Radiography program at Mayo.
- 8 This course sequence includes pre-requisite classes for the Radiography program at Mayo Health Sciences as well as those needed to graduate from WSU with a Biology major once the program at Mayo has been completed.
- 9 In order for a Biology B.S. degree to be conferred by Winona State University, 30 credits must be completed in residence at Winona State University. Courses transferred from Mayo Clinic School of Health Sciences are not included as part of this requirement.

Guide to 4 Year Major Maps

- 4 Year Major Maps are intended to show a recommended four-year pathway to a degree. Students must be fulltime, college ready, and ready to declare a major to follow the map exactly as shown. Maps are only a sample; there may be other pathways that lead to completion of the degree in four years.
- Major Maps are NOT intended to take the place of meetings with advisors.
- Major Maps are NOT intended to take the place of the Degree Audit System (DARs).

All courses listed on a major map will be labelled as one or more of the following:

| GE Goal    | General Education Goal Area       | Indicates that the course meets one of the 10 General Education Goals  |
|------------|-----------------------------------|--|
| Gen Elec   | General Elective                  | Indicates that the course does not meet a General Education, Major or Minor requirement but does count toward the degree |
| Major      | Major Requirement                 | Indicates that the course meets a Major requirement  |
| Major Elec | Major Elective                    | Indicates that the course counts toward the major as an elective, must be chosen from list of approved courses           |
| Minor      | Minor Requirement                 | Indicates that the course meets a Minor requirement  |
| CAI        | Critical Analysis Intensive       | Indicates that the course counts as a Critical Analysis Intensive  |
| OI         | Oral Intensive                    | Indicates that the course counts as an Oral Intensive  |
| WI         | Written Intensive                 | Indicates that the course counts as a Written Intensive  |
| PDW        | Personal Development and Wellness | Indicates that the course counts as a Personal Development and Wellness Requirement                                      |

General Education Goal Areas:

|         |   | Minimum credits required |
|---------|---|--------------------------|
| Goal 1  | Communication   | 7 credits                |
| Goal 2  | Critical Thinking (Met with completion of all other goal areas) | --                       |
| Goal 3  | Natural Science   | 7 credits                |
| Goal 4  | Mathematics   | 3-4 credits              |
| Goal 5  | History, Social/Behavioral Sciences                             | 9 credits                |
| Goal 6  | Humanities and Fine Arts  | 9 credits                |
| Goal 7  | Human Diversity   | 3 credits                |
| Goal 8  | Global Perspective  | 3 credits                |
| Goal 9  | Ethic and Civic Responsibility                                  | 3 credits                |
| Goal 10 | People and the Environment                                      | 3 credits                |

Graduation Requirements:

- Minimum of 120 total credits (semester hours) required for Bachelors' Degree
- Minimum of 40 General Education credits required
- Minimum of 40 Upper Division credits required
- Minimum of 30 Residence credits required in Junior/Senior years
- Minimum WSU cumulative grade point average of 2.00; some programs require higher grade point averages

Major Maps are not contracts. Winona State University reserves the right to make changes at any time, without prior notice, to programs, policies, procedures and information described in this major map. Students should consult the appropriate academic department or college for currently accurate program information.