

# BIOLOGY TEACHER PREPARATION ENDORSEMENT REQUIREMENTS FOR BIOLOGY TEACHERS

Listed below are prerequisites for biology students entering the secondary Teacher Education Program in the College of Education. **Alternate courses may be approved permitting flexibility in planning for UW undergraduate degrees.** Students must also pass the WEST-E/NES test in Biology in order to obtain a biology endorsement on the state teaching certificate.

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| Academic content area  | <b>RECOMMENDED UW Courses.</b> Other courses may also be approved. Professional experiences may also be used to meet requirements. Minimum grade 2.5 in all courses used to fulfill requirements.                           |
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| <b>1. Supporting Coursework</b><br>Intro Chemistry (5 credits)<br>Organic Chemistry (4-5 credits)<br>Statistics/Calculus (5 credits)   | Chem 120/142/145<br>Chem 220/223/237<br>Stats 220/311 or QSCI 381/291 or MATH 124   |
| <b>2. Introductory Biology</b>   | Biol 180,200,220  |
| <b>3. Upper Level Biology</b><br>30-35 credits   | <u>One course</u> is required for each content area below, courses cannot be shared. <b>Must include a minimum of 3 upper level lab courses.</b> <i>These classes are for reference, others may be used as substitutes.</i> |
| Ecology (3-5 credits)  | Biol 315, 356, 424/478, 433, 456, 471, 472, 473, 480, 481; ESRM 350; FISH 330, 464  |
| Evolution (3-5 credits)  | Biol 354, 385, 408, 414, 415, 420, 437, 443, 447, 449, 469, 481; Genome 453   |
| Natural History (3-5 credits)  | Biol 311, 317, 330, 434, 440, 441, 443, 444, 448, 451, 452, 454; ESRM 435, 452; FISH 475  |
| Cell biology (3-5 credits)   | Biol 302, 355, 401, 402, 405, 407, 411, 415, 416, 457, ; Microm 301, 442, 445;  |
| Animal Physiology (3-5 credits)  | Biol 118/119, 310, 350, 404, 417, 418, 427, 460, 461, 462, 465, 467; FISH 324, 441  |
| Genetics (3-5 credits)   | Biol 340, 413, 416; Genome 351, 361, 371, 372, 411, 453, 454, 465; Microm 431   |
| Scientific Research (2 credits min)  | Biol 400, 403, 407, 413, 426, 463, 472, 480, 482, 499 from various departments  |
| Teaching skills:<br>Peer facilitator (3 credits)   | Biol 492, or 396- Outside experiences may also be sufficient like tutoring  |
| Bio-ethics (3-5)   | BH 402, 404, 411, Biol 315, 380, 476, 494; ESRM 459, ESRM 465   |
| <ul style="list-style-type: none"> <li>• Total # credits: Must have at least 45 credits in biological sciences</li> <li>• Minimum 3.0 cumulative GPA in Biology required</li> <li>• Need 3 advanced labs that can overlap with coursework</li> </ul> |   |

## ADDING AN ENDORSEMENT IN GENERAL SCIENCES

This endorsement lets you teach ANY science Gr. 5-12 after a primary science endorsement.

- You must take NES in General Science in addition to the Biology NES.

## UW MIT PROGRAM (SECONDARY TEP) APPLICATION REQUIREMENTS

<https://education.uw.edu/programs/teacher/secondary-tep>

- Spend a minimum of 40 hours in a middle school science or high school biology classroom (*high needs/ diverse schools preferred*). Must be completed prior to application.
- Take NES test in biology (*suggested to also take the general science endorsement test as well*).
- Take WEST-B test (SAT/ACT may act as a substitute).
- Maintain 3.0 GPA on last 90 graded credits.

**MIT APPLICATION (SECONDARY TEP) DEADLINE FOR SPRING PROGRAM is October (date TBA)**

## THINKING ABOUT TEACHING?

### ASK YOURSELF:

**Do you really LIKE kids?** What ages? Would like to be around them all day? **Do you LOVE biology?** All areas of biology, from bio-molecules to ecosystems? Labs, lectures, books, field experiences, dissections, research, the whole thing...? **Do think creatively about learning?** Enjoy constructing unique learning opportunities, making up games that teach, setting up aquaria, laying out ideas sequentially, making roadmaps to concepts, building science equipment, designing models etc.???

**YOU WILL NEED A TEACHING CERTIFICATE.** In order to teach in a K-12 public school in Washington, you must be certified. At the UW, teacher certification is a master's degree program (MIT) for either elementary teacher preparation (K-8) or for secondary teacher preparation (7-12). Contact the College of Education for more information: [edinfo@u.washington.edu](mailto:edinfo@u.washington.edu) or <https://education.uw.edu/programs/teacher/secondary-tep>

**TEACHING IN ELEMENTARY SCHOOL (K-8):** Elementary teachers are generalists - they must be able to teach a little bit of everything, including music, art, PE and science. Many elementary schools hire science specialists. These teachers rove from classroom to classroom or have groups of students come to the science room for 50-minute science sessions. A science specialist has a general science endorsement on his/her certificate. Elementary science teachers do simple "hands-on" science activities and experiments with the kids: grow beans, hatch frog eggs, do experiments with worms and slugs, cabbage chemistry, etc.

**TEACHING MIDDLE SCHOOL SCIENCE or HIGH SCHOOL BIOLOGY:** Middle school science teachers need a teaching endorsement in general science. A typical middle school offers one semester of life science and one semester of earth science. At the junior high and senior high level, students begin structured courses in biology, chemistry and physics and the teacher must have an endorsement in each discipline in order to teach the subject. Whatever level you teach, you'll need a plentiful supply of energy, creativity and intellectual commitment. Even with a degree in biology, you'll never be adequately prepared to teach biology - the field is growing so fast, and keeping up with new developments will be an ongoing challenge. Many school districts do not have a set curriculum in biology; much is left up to the teacher to decide what to teach. But the national effort to reform science education has resulted in national and state standards outlining what students should know about science at different grade levels:

<https://www.k12.wa.us/student-success/resources-subject-area/science/science-k%E2%80%9312-learning-standards>

Most middle & high school teachers teach upwards of 150 students per day! (5 classes; 30 students/class) As a group, science teachers are interested, committed professionals who recognize the value of their work. Since so many of our societal problems have a biological component, biology teachers are subject to a lot of pressure from society to prepare knowledgeable future citizens. It is rewarding work and a good sense of humor is an asset!

### THINGS YOU CAN DO TO PREPARE FOR TEACHER CERTIFICATION:

- 1. Complete the Biology Endorsement:** Take courses that will prepare you to be endorsed in biology on your Washington State teaching certificate. Courses can easily be worked into undergraduate majors in the biological sciences. The UW teacher certification program requires that 90% of your biology endorsement coursework be completed before beginning the MIT program, and that you pass the biology WEST-E subject test in biology.
- 2. Apply to UW Teacher Education Program (TEP)/Masters in Teaching (MIT).** Deadlines: **Elementary Program** begins Summer Quarter, deadline is generally in September. **Secondary<sup>SEP</sup> Program** begins Spring Quarter, deadline is general in October. **Early admission** for UW seniors begins spring quarter of your senior year. For more information, attend a TEP Infosession: <https://education.uw.edu/programs/teacher/secondary-tep>
- 3. Spend time in a K-12 classroom.** This is a must! Nothing better helps you decide if teaching is the right option for you. Contact a school and tell them you are considering becoming a teacher and would like to volunteer in the classroom. You need 40 hours of working with students before you apply to UW MIT.
- 4. Research available resources for teaching.** Read science teaching journals, the UW libraries has many online and accessible. Networking Nights and alumni events will occasionally bring in K-12 teachers in the sciences. Read the educational headlines on a national level to see concerns, gaps, and possible issues you could encounter.
- 5. Peer facilitators - Biology 396 and/or take BIOL 492.** Work with professors to learn the fundamentals of teaching and engaging students within inquiry science. Find out about exciting labs, resources & activities.
- 6. Talk with teachers.** Attend the WSTA annual teachers' conference. This is a good opportunity to interview science teachers, hear about interesting things going on in science classrooms and around the state, learn about teaching resources. Generally, the fall of each year is the best time to start this experience.
- 7. Work with kids.** Volunteer with the Seattle Aquarium, Woodland Park Zoo, Pacific Science Center or other organizations that will give you experience interpreting science or nature for an audience. Check out the Dream Project: <https://www.washington.edu/dreamproject/> or Riverways: <https://expd.uw.edu/riverways/>
- 8. Check out the Minor in Education, Learning and Society.** <https://education.uw.edu/programs/undergraduate/els>