

BDS Experiential Learning Activity

BDS students are required to have Experiential Learning Activities (ELAs) that involves hands-on experience working with biological data and totals a minimum of **60 hours** (equivalent to 2 credit hours).

ELA Checklist:

- 1) Identify activities of interest that have a suitable ELA supervisor/mentor; discuss with your BDS advisor.
- 2) Fill out the ELA Agreement (p. 2-3) and have your supervisor sign.
- 3) Submit the form to your BDS advisor before starting the ELA.
- 4) Conduct your ELA.
- 5) Upon completion, submit to your BDS advisor a completed Performance Evaluation from your supervisor (p. 4).

ELA categories:

- 1) Internships (volunteer, paid, or as BDS 004)
- 2) Research experiences (volunteer, paid, or credit; see BDS 003, BDS 401, and BDS 403)
- 3) Study abroad
- 4) Student teaching
- 5) Service learning/community engagement

Example activities:

- 1) Research with university, government or approved private institution
- 2) Apprenticeship as a teaching assistant, school or camp instructor
- 3) Develop educational material for a public or private institution

General goals of ELA:

- 1) Learn to apply knowledge of biological data sciences from coursework to real world challenges.
- 2) Develop your communication and collaboration skills.
- 3) Reflect upon your motivation for, interests in, and potential career paths.

ELA reflection:

Students are recommended to maintain a journal of their experiences to document the main hands-on experiences of the ELAs, any challenges or issues encountered that raised questions, which have solutions that are based on a knowledge of biological data sciences, and how experiences informed thoughts on career paths. The journal should also reference relevant scientific literature and place the activity in a larger scientific and societal context. After completing the ELA(s), students are required to take BDS 420 and reflect (orally and in writing) upon their learning experiences. Students must work with the mentor to determine whether there are any features of the activity that must remain confidential.

Experiential Learning Activity (ELA) Agreement

Student:

Name	OSU ID #	Major
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Local Address	Phone
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Student Signature	Date	Oregon State e-mail
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Supervisor:

Name and Title of Supervisor / Mentor	Phone
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Mentor's Signature	Date	E-mail
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Describe proposed experiential learning activity and the skills and knowledge you expect to gain from the experience. Relate the skills and knowledge to either the general goals or two specific outcomes (see Appendix).

Estimated hours of work/ week: _____ Number academic credits _____

_____ Unpaid/Volunteer or _____ Paid Rate of pay: _____

Experiential Learning: Performance Evaluation
 Date: _____
 Student: _____
 Supervisor: _____

*Ratings: **Exceeds expectation; Very good; Good; Needs improvement**

Evaluation Criteria	Ratings	Comments
Use of scientific process/domain knowledge: ability to learn and apply knowledge.		
Work quality: accuracy and completeness of work, organization, and record keeping		
Critical thinking skills: ability to assess problems, analyze information, develop solutions.		
Initiative and productivity: motivation, resourcefulness, creativity, accomplishes work goals		
Dependability: regularity in attendance, performing work, meeting deadlines		
Communication and cooperation: effectiveness of oral and written communication; listening and interacting with others in a helpful and professional manner; seeks clarification when needed		
Professionalism and ethical behavior: demonstrated honesty, integrity, and respect		

Additional Mentor Feedback:

Appendix – Reference Information for completing the ELA Agreement

Key characteristics of a successful Experiential Learning Activity:

- 1) *Authentic*: the student will relate the experience to real-world applications, problems or challenges.
- 2) *Reflection*: the student must transform the activity into a learning experience. Reflection starts at the onset, from identifying the intent of the experience to understanding preconceptions and how the experience may have changed those preconceptions.
- 3) *Improvement*: the student, via reflection and guidance from mentors, is expected to be involved in a feedback loop that increases their understanding of their chosen subject area as well as its place in the broader biological and human world.
- 4) *Assessment*: the must have learning outcomes and the student will be evaluated relative to the learning outcomes.

Experiential Learning Activity – Possible Learning Outcomes

To satisfy requirements for an experiential learning activity in the BDS program, intentional consideration of goals and expected outcomes must be clearly defined at the outset. The activity will involve reflection on the defined goals and expected outcomes, such that students improve their understanding of their chosen scientific field in a broader context, as well as improve their own potential for success in graduate school, professional school, or their chosen careers.

Participants in the initial intentional planning process may select from the following possible general learning outcomes of an EL activity. The mentor/supervisor can also develop specific learning outcomes, if appropriate.

Potential learning outcomes of an experiential learning experience.

1. Apply the process of scientific investigation in a real-world context.
2. Apply critical thinking in a real-world context.
3. Use appropriate quantitative and visual methods in scientific investigation.
4. Demonstrate proficiency in using appropriate methods to organize and manipulate large datasets.
5. Apply the core concepts in the biological sciences, mathematics, statistics, and computer science to scientific investigation.
6. Demonstrate effective communication:
 - A. verbal, and/or
 - B. written.
7. Demonstrate effectiveness in functioning within a team.
8. Adhere to the standards of professionalism and ethical behavior (honesty and integrity):
 - A. in all stages of scientific practice to produce unbiased scientific knowledge,
 - B. in all stages of teaching,
 - C. in using proprietary information, and/or
 - D. in exemplifying global citizenship.

- 9.** Apply the core concepts of the biological data sciences to
 - A.** scientific investigation,
 - B.** teaching, and/or
 - C.** service learning or community engagement.
- 10.** Use assessments to reflect on their own understanding of biological data sciences:
 - A.** by their mentors (Internship/Research/Service learning),
 - B.** teachers (study abroad), and/or
 - C.** of their students' learning (teaching).