

## **GEM3 VIP/LAB MODULE**

### **OVERVIEW & TIMELINE**

**General Overview:** GEM3 is using a Vertically Integrated Project (VIP) strategy which is a fully integrated research, education and workforce development program designed to increase the number, diversity and preparation of skilled scientists and engineers in GEM3 fields (bioinformatics, computational biology, conservation genetics, ecosystem management). The VIP Program brings together undergraduate education and faculty research in a team-based context.

This effort includes the three research universities, Idaho State University (ISU), Boise State University (BSU), and University of Idaho (U of I), four primarily undergraduate institutions (PUIs) and more than a dozen public, private, and nonprofit collaborators and stakeholders. PUIs include North Idaho College (NIC), Lewis-Clark State College (LCSC), College of Western Idaho (CWI), and College of Southern Idaho (CSI), College of Idaho (C of I), and Eastern Idaho College.

#### **VIP Courses, LAB Modules, and SRE development:**

Undergraduate students can enroll in **VIP courses** to earn academic credits, while faculty and graduate students benefit from the design/discovery efforts of their teams. The VIP creates long-term research and development experiences by extending the research beyond a single semester, allowing time for students to learn and practice professional skills, make substantial contributions, and participate in different roles as part of a larger multidisciplinary research team. The long-term nature of VIP also creates an environment of mentorship with faculty and graduate students mentoring teams. The VIP is implemented statewide and the goal is to provide the scaffolding to support transdisciplinary science and grow the next generation of conservation science leaders and workers.

In addition to the VIP courses, **lab modules** are being created as a mechanism to identify and recruit students who may have an interest in the GEM3 research.

**Student Research Experiences (SRE)** will also be developed to promote diverse participation and success in GEM3-related STEM fields. This program specifically seeks underrepresented minority (URM) students, providing them with an intensive laboratory and field experience, while creating an important bridge between academic years. This experience is also open to diverse students from the PUIs who transfer to Idaho research institutions.

## GENERAL TIMELINE (VIP Course & Lab Module Overview):

Institution	VIP Course	Lab Module	Faculty	Sum 2019	Fall 2019	Spring 2020
BSU	<b>Spatial analysis of environmental data: A VIP course to address sagebrush steppe restoration</b> <ul style="list-style-type: none"> <li>Also discussing ways to implement cross-institutional VIP classes with both ISU and CWI, with more potential collaborations in the future.</li> <li><a href="https://www.boisestate.edu/vip/mapping-sagebrush-restoration/">https://www.boisestate.edu/vip/mapping-sagebrush-restoration/</a></li> </ul>		<b>Dr. Trevor Caughlin</b> , Assistant Professor in the Department of Biological Sciences	X	X	
		<b>Remotely Sensing Plant Phenotypes</b> <ul style="list-style-type: none"> <li>2-3 week lab module that will be placed into Ecology and Evolution at BSU in fall 2019 and into General Ecology at CWI in spring 2020.</li> </ul>	BSU doctoral students with GEM3 faculty guidance and support		X (BSU)	X (CWI)
		<b>Monitoring Functional Phenotypes of Wildlife</b> <ul style="list-style-type: none"> <li>lab module for an Animal Physiology and Nutrition class at BSU</li> </ul>	<b>Jen Forbey</b> , Associate Professor in Department of Biological Sciences		X (BSU)	X (CWI)
ISU	<b>Investigating/Describing/Studying Phenotypes</b>		<b>Dr. Keith Reinhardt</b> (Associate Professor Plant Physiological Ecology) and <b>Dr. Ernest Keeley</b> (Professor in Fish Ecology)		X (ISU)	
UI	<b>Protecting and Conserving Sagebrush/Grouse Habitats/Bio 403 – Special Section (sophomore level)</b>		<b>David Tank</b> , U of I faculty in the Department of Biological Sciences and UI graduate student		X	X
CWI	<b>Ecotypic Variation in Showy Milkweed</b> with a focus on identifying locally relevant adaptive traits to maximize restoration success		<b>Dusty Perkins</b> , Associate Professor of Biology		X (CWI)	
	**See other <b>joint courses with BSU</b> above					X (CWI)