CSULB
Research Career Exploration (UNIV 150)
Standard Course Outline

I. General Information:

A.	Course Number:	UNIV 150
B.	Title:	Research Career Exploration
C.	Units:	3
D.	Prerequisites:	Composition II (AFRS 100, ASAM 100, CHLS 100, or ENGL 100). May be taken concurrently.
F.	Responsible Faculty:	Various
G.	SCO Prepared by:	Buonora, Paul; Long Wang, Nomura, Wendy; Eldon, Elizabeth; Nguyen-Rodriguez, Selena; Booth-Caro, Erin
H.	Date Prepared /Revised:	Spring 2015 / Fall 2016

II. Catalog Description

Research Career Exploration (3)
This course is designed for entering or undeclared students to evaluate the diversity of career opportunities available, particularly for those interested in research careers. Students will develop knowledge and skills designed to cultivate curiosity and an identity as a scientist.

III. Curriculum Justification

Many lower division students envision college or university faculty or clinical practice as the only career path available to those earning advanced degrees. Research Career Exploration facilitates the student's discovery of the opportunities and limitations in research careers that utilize advanced degrees. The College of Natural Sciences and Mathematics (CNSM), currently offers NSCI190A and NSCI190B (Experience Success Program –1 and –2; 1 unit each) which introduce students to the research experiences available in CNSM and provides instruction on best practices for organizational time management and test taking skills. Research Career Exploration builds upon these courses by engaging a greater diversity of student interests from across the university.

The requested GE Category is E: Lifelong Learning and Self Development.
Research Career Exploration is designed to promote student curiosity and knowledge of the many academic paths that can lead to careers in research and the independence to assess and follow the chosen academic and career path. At the onset of the course, students perform values and interest self-assessments and exploration of the range of potential research related careers within their specific discipline. Panel discussions or video interviews with professional researchers followed by reflective writing assignments are designed to address stereotypes and encourage students to relate with the social aspect of research that is integral to career success. Students will develop Written Communication skills to prepare and revise an Individual Development Plan (IDP) that will encourage reflective exploration of career possibilities and to set goals that can be followed on a career path that best fits individual student interests and experiences. To dispel stereotypes of researchers, students will learn to self-identify with research by summarizing numerical or categorical information in a graphical format. Stress- and time-management skills will be integrated into all of the activities and practiced to promote a life-long healthy lifestyle.

IV. Measurable Student Learning Outcomes (SLO), Evaluation Instruments, and Instructional Strategies for Skill Development

(the SLO must appear on all course syllabi)

Upon Successful Completion of the course, the student will be able to:

A. Learn of the careers available to researchers in their discipline and related disciplines.
B. Access information that would enable the student to identify the work-life qualities and required skills of specific careers.
C. Balance their individual values and interests with the work-life qualities and required skills of specific careers.
D. Independently develop and revise an academic plan that begins the process of becoming a professional scientist and will propel them to a successful career in academic, government or corporate research.

The preceding learning outcomes should appear on all course syllabi.

GE Learning Outcomes for Foundation and Skills for Lifelong Learning:

Measurable Benchmark for Curiosity SLO: After taking this course, students will be able to demonstrate a curiosity for PhD study and careers that engage research.
Evaluation Instruments: Specific assignments will vary by instructor, but typical assignments will include writing assignments and in-depth class discussion of the increasing need for a diversity of professional researchers, the requirements for gaining entry into PhD programs, goals and outcomes of doctoral degree programs, lifestyle of graduate students and the broad range of research careers available to those holding doctoral degrees in the sciences.
Instructional Strategies: Application packages to PhD programs in the sciences will be evaluated and an Individual Development Plan prepared that is focused upon meeting the qualifications needed for gaining entry to doctoral degree programs and a successful career in the sciences. The IDP is the core roadmap to be used for attaining a career as a professional scientist. Panel discussions with professional scientists coupled to reflective writing assignments will be used to explore career trajectories, advantages and responsibilities of those that earn a doctoral degree in the sciences. The career assessment at the Career Center will serve as a foundation for articulating student interests and goals as they relate to research.

Measurable Benchmark for Initiative SLO: After taking this course, students will demonstrate initiative for exploring a career in research.
Evaluation Instruments: Specific assignments will vary by instructor, but typical assignments will include writing assignments that encourage students to take the initiative to develop and revise a plan via the IDP that can be followed during their undergraduate studies and later that will result in a career in research. The importance of revising the IDP during undergraduate and graduate studies, and throughout ones career will be emphasized.
Instructional Strategies: Opportunities during undergraduate studies that provide a foundation for gaining entry into PhD programs will be discussed and those that relate to students' academic interests and goals will be integrated into each students' IDP.

Measurable Benchmark for Transfer SLO: After taking this course, students will demonstrate the ability to transfer knowledge and experiences from prior courses or experiences that synergize with their specific career interests and goals.
Evaluation Instruments: Specific assignments will vary by instructor, but typical assignments will include writing assignments that encourage students to reflect upon prior courses and experiences for identifying cultural and community assets that should be brought to and will

benefit research careers. In class discussions and writing assignments will demonstrate reflection on the value of diversity in research careers and stress- / time-management skills.
Instructional Strategies: Panel discussions with current PhD students in the sciences, faculty at local universities, and researchers in corporate or government environments will be used to demonstrate the link between prior experiences and career paths of these professionals with the intent of stimulating similar personal assessments and reflections in the students.

GE Learning Outcomes for Written Communication:

Measurable Benchmark for Context of and Purpose for Writing SLO: After taking this course, students will demonstrate writing and effective revision processes, and competency in presenting information in a graphical format.
Evaluation Instruments: Specific assignments will vary by instructor, but typical assignments will include preparing and revising the IDP and summarizing numerical or categorical information in a graphical format. The IDP is a written document designed to help students explore career possibilities and set goals to follow the career path that best fits each student. The development and implementation of an IDP is supported by a broad body of literature that underscores the value of deliberate career planning.
Instructional Strategies: A writing rubric and exemplar materials for preparing and evaluating content, organization, reasoning and writing conventions will be used. Online resources that are specifically designed for developing an IDP will be employed (*e.g.*myIDP offered by Science Careers), as will print literature on the topic. Standards for effective analytical writing will be discussed in class before and after writing assignments. Effective strategies for presenting numerical or categorical information in a graphical format will be demonstrated using exemplar materials from the scientific literature and popular media.

Measurable Benchmark for Control of Syntax and Mechanics SLO: After taking this course, students will demonstrate use of straightforward language that conveys the meaning to readers.
Evaluation instruments: The IDP is an individualized plan that is designed to convey to readers and the author a rational plan for achieving a career goal. One of the constituencies needed on board to support a student's aspiration for a career in science are their close friends and family, many of who may not be knowledgeable of the actionable planning needed to achieve a scientific career. As such, scientific jargon must be distilled to be understandable by peers in the academic community and others that are not engaged in academic pursuits.
Instructional Strategies: A writing rubric and exemplar materials for preparing and evaluating content, organization, reasoning and writing conventions will be used. Attention will be focused upon developing clear and concise syntax that conveys the personal goals of each student and a rational plan for their achievement.

V. Outline of Subject Matter

The primary topics to be covered in Research Career Exploration are designated below as A-E. Each primary topic is followed by a list of relevant subject matter. Instructors are expected to cover some of the listed subject matter for each primary topic. This course is intended to be activity-driven so that students are engaged with guided-discovery of their own path to a career as scientist.

The course is designed around the premise that students who are actively engaged in directing their own academic and career trajectories are more likely to stay on task and realize their planned objectives. Thus, while an aspect of this course is designed to inform students of

career opportunities, its principal goal is to motivate the students to plan and achieve a life-long academic career focused upon innovative research.

A. We Are All Scientists.

1. Encourage students to associate science-based careers with their natural curiosity to understand things and ideas that interest them the most.
2. Perform a Career Assessment at the community college or university Career Center (at CSULB, the Career Development Center).
3. Introduction to time-management strategies.
4. Analysis of the Career Assessment to identify related research careers.
5. Impacts of diversity in cultural and community assets on research and research careers.
6. Personal student videos that describe their vision of potential career paths.
    a. Evaluated at the end of the Research Career Exploration course and for reflection upon graduating with a bachelor degree or transferring to a university.
7. First in-person panel discussion or video interviews: Professional scientists at CSULB (Primary goal: Inspire).

B. What is a Professional Scientist?

1. Scientists are inspired explorers that seek to inspire others.
2. Overview of typical careers for scientists.
3. The ever-increasing demand for professional scientists in the workforce.
4. Overview of the typical education and training paths for becoming a professional scientist.
5. The currency of professional scientists: presenting research outcomes to other scientists (publications and presentations), monetary, prestige in society.
6. Second in-person panel discussion or video interviews: Professional scientists elsewhere (Primary goal: Inform on the diversity of careers available those with a PhD in a biomedical discipline: academic, government and corporate).

C. Becoming a Professional Scientist.

1. The university is a scholarly community.
2. There is a path available to everyone for achieving the goal of becoming a professional researcher.
3. Overview of PhD degree programs in the sciences.
4. Guided discovery of the requirements for gaining admission to a PhD degree program in the sciences.
5. Begin guided construction of an individual development plans (IDP; prepare, evaluate (instructor and peer) and revise model).
    a. Time-management plan for success and life-long enjoyment while working toward entering a PhD program, and beyond.
6. Third in-person panel discussion or video interviews: Admissions Officer (Primary goal: Inform on admission opportunities and requirements (invite admissions officer from UCI or UCLA).

D. The Professional Scientist in Training.

1. Differences between admitted PhD student and PhD candidate.
2. Description of a PhD thesis and how to make it the best possible.

3. Scientific communication:
    a. Oral and poster presentations at scientific conferences: opportunities to learn and network.
    b. Publishing the outcomes of the independent thesis research in peer-reviewed journals.
    c. Publishing review articles.
4. Value of conducting research that may not be included in a thesis: earning authorship on collaborative studies.
5. Building on what is known: Introduction to literature searches with PubMed and Google Scholar.
6. Inquiry– and example–driven overview of basic and advanced methods used for discovery in biomedical research.
7. Funding during the PhD program (PhD students get paid for teaching and research).
8. Lifestyle of a PhD student.
    a. The importance of time-management during PhD studies.
9. Fourth in-person panel discussion or video interviews: PhD students from UCI or UCLA (early, mid- and late in the program (preference for prior BUILD students); Primary goal: Provide broad perspective on the process of the training involved with becoming a professional scientist).
10. Revise IDP with newly gained knowledge of professional scientist training.

E. The Professional Scientist in Action

1. Differences between PhD candidate, postdoctoral scholar and career scientist.
2. Balancing career aspirations of the scientist and their family.
3. Getting the job: postdoctoral scholar, academic, government and corporate scientists.
4. Funding for postdoctoral scholar and career scientist: searching NSF and NIH databases for funding opportunities and funded projects.
5. Being the boss of your career.
6. The role of a mentor: leading others in research training and careers.
7. Fifth in-person panel discussion or video interviews: Senior professional scientists (Primary goal: Discovering what it means to be an effective mentor).
8. Reevaluate the Career Assessment and personal student video.
9. Course reflection and revision of the IDP with plan for continual revision of the IDP throughout the academic program.

VI. Methods of Instruction

Because this is a Lifelong Learning and Self Development course, it is expected that formal lectures will be minimized and that students will regularly and actively engage in developing a mindset for lifelong learning and practice skills that promote self-development. Delivery of course content to student will be face-to-face, as opposed to hybrid or online formats that are available. Individual instructors will decide upon the specific methods used in this course, but it is recommended that students participate extensively in different formats for learning that encourage introspective analysis of the interrelatedness and intersections of academic and career paths in the sciences. Instructors are encouraged to employ the following methods of instruction:

A. Lectures:

Lecture is used to present basic information about the topic, the basic concepts, principles, facts, or theories and elaboration of such.

B. Discussions:
Discussions are encouraged through the probing of questions and answers between teacher and students to enable critical thinking relative to career options in the biomedical and behavioral sciences, and the academic pathways that result in a successful related career. Student-led discussions will require student interaction and group discussion on various topics.

C. Guest speakers:
Experts in the field will discuss their career paths and inspirations to help students identify with the concept and practice being a scientist.

D. Multi-media presentations:
Lectures are presented through overheads or PowerPoint presentations using the computer laptop and LCD. Course handouts, illustrations, course packet materials and study guides, and videos illustrating career paths and academic paths toward achieving them.

E. Small group discussions:
Small group discussions are encouraged in the form of exercises that utilize critical thinking and analysis, synthesis, or evaluation of facts, situations, or cases.

F. Group activities:
Small group activities include exercises that encourage students to critically assess the IDP.

VII. Information about Textbooks / Readings

A. Power Point presentations for lectures and guided discussions
B. Web-based or Internet research for student assignments and projects.
C. Video recording and presentations.
D. Computer word-processing for student assignments.
E. Internet based searches to evaluate PhD programs, funding opportunities and published research articles.

VIII. Bibliography (one page limit)

- http://www.naceweb.org/knowledge/career-services/career-course-syllabi.aspx
- http://sacnas.org/about/stories/sacnas-news/summer-2013/building-your-IDP
- http://www.simmons.edu/cec/about/about-the-cec/5-step
- https://mcb.berkeley.edu/academic-program/individual-development-plan

IX. FACULTY INSTRUCTIONAL REQUIREMENTS

A. Textbooks

1. Instructors must assign written materials (textbook, workbook reading packet, handouts, etc.) that reflect all Course Objectives and Outcomes (Section III). These materials also should cover the information listed under each primary topic (A-E) described in the Outline of Content (section IV). Recommended and acceptable textbooks include:
   a) Kalil, Carolyn. "Follow Your True Colors to the Work You Love". Book Partners, Inc., 2005.

b) Keys to Success: Building Analytical, Creative, and Practical Skills (7th Edition) by Carol J. Carter, Joyce Bishop, Sarah Lyman Kravits. ISBN-13: 978-0137073603
c) The Career Fitness Program: Exercising Your Options (10th Edition); Diane Sukiennik Professor Emeritus, Lisa Raufman Professor Emeritus, William Bendat; ISBN-13: 978-0132762335

B. Other Required Materials

Career Assessment at Career Center
Myers-Briggs Type Indicator

COURSE OUTLINE (subject to change)

Week	Content
1	Introduction and Career Assessment
2	Analysis of Career Assessment and Personal Student Videos
3	Identification as a Scientist, Diversity and Community Assets
4	Professional Scientist: Education and Career Paths
5	The Currency of Professional Scientists
6	Degree Programs in the Sciences
7	Prepare IDP
8	Revise IDP with Peer and Instructor Guidance
9	Admission Practices for PhD Programs
10	PhD Programs and the Thesis
11	Scientific Communication
12	Developing a Research Question and Getting Funds as a PhD Student to Pursue It
13	Lifestyles of a PhD Student
14	Beyond the PhD Program
15	Role of a Mentor
	Finals Week

X. Instructional Policies Requirements

Instructors may specify their own policies with regard to plagiarism, withdrawal, absences, etc., as long as the policies are consistent with the University policies published in the CSULB Catalog. It is expected that every course will follow University policies on Attendance (PS 01-01), Course Syllabi and Standard Course Outlines (PS 11-07), Final Course Grades, Grading Procedures, and Final Assessments (PS 05-07), and Withdrawals (PS 02-02). All sections of the course will have a syllabus that includes the information required by the syllabus policy adopted by the Academic Senate. Instructors will include information on how students may make up work for excused absences. When class participation is a required part of the course, syllabi will include information on how participation is assessed. When improvement in oral

communication is an objective of the course, syllabi will include a rubric for how oral communication is to be evaluated.

XI. Course Assessment

University policy requires that no single evaluation of student achievement may count for more than one-third of final grade. Appropriate assignments may include:

1. Writing assignments designed to encourage student reflection on the video interviews or in-person panel discussions of professionals in science-based research fields.
2. In-class and take-home writing assignments will be assigned to assess students' knowledge of course content, capacity to interpret quantitative or categorical information, and to encourage effective stress- and time-management skills.
3. A final exam will be assigned to assess students' knowledge of topics included in the Course Objectives and Outcomes, and to encourage effective stress- and time-management skills.

To ensure continuity in the BUILD curriculum, instructors must use each of the following assessments.

1. Perform a Career Assessment at the community college or university Career Center (at CSULB, the Career Development Center).
2. Individual Development Plan (IDP). Research training is a purposeful activity that results from a thoughtful assessment of the background, interests and needs of each student seeking admissions to a PhD program and a career in the sciences. An IDP is a tool that aids students and mentors with this planning process. The IDP is a dynamic document that will be periodically reviewed and revised during the Research Career Exploration course and in other courses associated with the BUILD Program. There are several online resources through the NIH or scientific societies (*e.g.* AAAS) to guide implementation of an IDP. The IDP should be developed over the last half of the semester or earlier, and will serve as a capstone for the course.
3. Students will complete written assessments on the first and final class meetings that are designed to assess student awareness of the academic plan that is needed to obtain research careers in the sciences (i.e. Pre- and Post-assessment).

Instructors must follow the general policy on grading outlined by their institution. For CSU Long Beach, the final course grades must be based on at least three separate evaluations of student achievement and the final exam may count for no more than one-third of the final course grade. Aside from these constraints, the exact number of assignments and value of each assignment is left to the discretion of each instructor. However, immediately below is an example of assignments and the percent of the grade that may be utilized by instructors for developing specific offerings of the course.

Assignment	Percent of Grade
Career assessment	5
Quizzes to assess reading	15
Short reflection writing	20
Student video describing career paths	5

IDP (1st draft)	10
IDP (revisions)	5
IDP (final draft)	20
Course reflection	5
Attendance	5
Final exam	10

XII. Consistency of SCO Standards Across Sections

Course instructors meet twice a semester, once at the beginning and once at the end. They review course assignments, criteria sheets and student outcomes. As a result of the meetings, necessary changes are made in instruction and assignments. All course syllabi are in close alignment with the SCO. All course sections use the same textbook and grading guidelines for assessments.

XIII. Program-Level Assessment Plan

A. Exam grades will be used to assess students' learning of critical, foundational and research information contained in the SLO's.
B. GE skills will be assessed utilizing rubrics and criteria sheets generated by faculty and based on best-practices for each domain assessed. All instructors will utilize the same rubrics and criteria sheets for all skill-based assessments.
C. At the close of the each semester, the Faculty Coordinator for the course will convene a meeting of all instructors to conduct an assessment of all rubrics, and any necessary edits will be made at that time.