COURSE OUTLINE : ATHPE 151
D Credit – Degree Applicable
COURSE ID

PROPOSAL

COURSE DISCIPLINE : ATHPE

COURSE NUMBER : 151

COURSE TITLE (FULL) : Women's Basketball Conditioning

COURSE TITLE (SHORT) : Women's Basketball Conditioning

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID :

CATALOG DESCRIPTION

ATHPE 151 is designed for the student-athlete interested in conditioning for intercollegiate women's basketball. The course is intended to provide strength and conditioning exercises with an emphasis on safety, injury prevention, rules, and game plays for women's basketball.

CATALOG NOTES

ATHPE 151 is designed for the intercollegiate women's basketball team. May be taken 4 times for credit.

Total Lecture Units:0.00

Total Laboratory Units: 1.50

Total Course Units: 1.50

Total Lecture Hours:0.00

Total Laboratory Hours: 81.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 81.00

PRECONDITIONS FOR ENROLLMENT
None

ENTRY STANDARDS

	Subject	Number	Title	Description	Include

1				explain intermediate knowledge of basketball biomechanics such as footwork, shooting, blocking, passing and dribbling	Yes
2				demonstrate intermediate techniques of basketball biomechanics such as footwork, shooting, blocking, passing and dribbling	Yes
3				engage in cardiovascular and mental training at moderate to vigorous levels	Yes
4				integrate intermediate basketball knowledge to strength training movements	Yes
5				apply strength training exercises to basketball specific movements	Yes

EXIT STANDARDS

1 perform an advanced level of physical skills relative to participation in intercollegiate competition

2 execute offensive and defensive strategies used at the collegiate competitive level

3 demonstrate basketball specific movements at moderate to advanced levels

4 demonstrate basketball specific strength and conditioning techniques

5 increase physical fitness, strength and basketball specific techniques

STUDENT LEARNING OUTCOMES

1 develop and apply a strength training program as it applies to intercollegiate women's basketball

2 develop and apply a cardiovascular training program as it applies to intercollegiate women's basketball

3 demonstrate and apply safety rules and procedures to effectively participate in a physical movement environment

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours

1	Strength Training for Basketball • Core • Upper body • Lower body • Knee care	0	28	28
2	Plyometric Training for Basketball • Bounding and leaping drills • Battling ropes • Sparq ladder • Agility drills	0	12	12
3	Situational Training in Basketball • Defensive and offensive training strategies • Team work between defensive positions • Team work between offensive positions	0	12	12
4	Cardiovascular Training in Basketball • Sprinting endurance • Dynamic explosive movements	0	24	24
5	Application of Rules in Basketball • Defensive rule interpretation and strategies • Offensive rule interpretation and strategies	0	5	5
				81

OUT OF CLASS ASSIGNMENTS

1 fitness analysis (e.g. body weight, body composition, recognized perceived exertion)
2 field activities (e.g. physical exercise to enhance in-class activity)

METHODS OF EVALUATION

1 demonstration
2 group participation
3 one repetition strength tests (e.g. one repetition of maximum weight for squats)
4 timed sprints

5 multiple repetition strength tests (e.g. timed push-ups)
6 static strength tests

METHODS OF INSTRUCTION

- [ ] Lecture
- [x] Laboratory
- [ ] Studio
- [x] Discussion
- [x] Multimedia
- [ ] Tutorial
- [ ] Independent Study
- [x] Collaboratory Learning
- [x] Demonstration
- [x] Field Activities (Trips)
- [x] Guest Speakers
- [ ] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
2019-20 and 2020-21 NCAA Women's Basketball Rules and Interpretations	Required				National Collegiate Athletics Association		2020

COURSE OUTLINE : ATHPE 152
D Credit – Degree Applicable
COURSE ID

PROPOSAL

COURSE DISCIPLINE : ATHPE

COURSE NUMBER : 152

COURSE TITLE (FULL) : Men's Basketball Conditioning

COURSE TITLE (SHORT) : Men's Basketball Conditioning

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID :

CATALOG DESCRIPTION

ATHPE 152 is designed for the student-athlete interested in conditioning for intercollegiate men's basketball. The course is intended to provide strength and conditioning exercises with an emphasis on safety, injury prevention, rules, and game plays for men's basketball.

CATALOG NOTES

ATHPE 152 is designed for the intercollegiate men's basketball team. May be taken 4 times for credit.

Total Lecture Units:0.00

Total Laboratory Units: 1.50

Total Course Units: 1.50

Total Lecture Hours:0.00

Total Laboratory Hours: 81.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 81.00

PRECONDITIONS FOR ENROLLMENT
None

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1				explain intermediate knowledge of basketball biomechanics such as footwork, shooting, blocking, passing and dribbling	Yes
2				demonstrate intermediate techniques of basketball biomechanics such as footwork, shooting, blocking, passing and dribbling	Yes
3				engage in cardiovascular and mental training at moderate to vigorous levels	Yes
4				integrate intermediate basketball knowledge to strength training movements	Yes
5				apply strength training exercises to basketball specific movements	Yes

EXIT STANDARDS

1 perform an advanced level of physical skills relative to participation in intercollegiate competition
2 execute offensive and defensive strategies used at the collegiate competitive level
3 demonstrate basketball specific movements at moderate to advanced levels
4 demonstrate basketball specific strength and conditioning techniques
5 increase physical fitness, strength and basketball specific techniques

STUDENT LEARNING OUTCOMES

1 develop and apply a strength training program as it applies to intercollegiate men's basketball
2 develop and apply a cardiovascular training program as it applies to intercollegiate men's basketball
3 demonstrate and apply safety rules and procedures to effectively participate in a physical movement environment

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Strength Training for Basketball • Core • Upper body • Lower body • Knee care	0	28	28
2	Plyometric Training for Basketball • Bounding and leaping drills • Battling ropes • Sparq ladder • Agility drills	0	12	12
3	Situational Training in Basketball • Defensive and offensive training strategies • Team work between defensive positions • Team work between offensive positions	0	12	12
4	Cardiovascular Training in Basketball • Sprinting endurance • Dynamic explosive movements	0	24	24
5	Application of Rules in Basketball • Defensive rule interpretation and strategies • Offensive rule interpretation and strategies	0	5	5
				81

OUT OF CLASS ASSIGNMENTS

1 fitness analysis (e.g. body weight, body composition, recognized perceived exertion)
2 field activities (e.g. physical exercise to enhance in-class activity)

METHODS OF EVALUATION

1 demonstration
2 group participation
3 one repetition strength tests (e.g. one repetition of maximum weight for squats)
4 timed sprints
5 multiple repetition strength tests (e.g. timed push-ups)
6 static strength tests

METHODS OF INSTRUCTION

☐ Lecture
☑ Laboratory
☐ Studio
☑ Discussion
☑ Multimedia
☐ Tutorial
☑ Independent Study
☑ Collaboratory Learning
☑ Demonstration
☑ Field Activities (Trips)
☑ Guest Speakers
☐ Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
2019-2020 NCAA Men's Basketball Rules and Interpretations	Required				National Collegiate Athletics Association		2020

COURSE OUTLINE : ATHPE 180
D Credit – Degree Applicable
COURSE ID

PROPOSAL

COURSE DISCIPLINE : ATHPE **COURSE**

NUMBER : 180

COURSE TITLE (FULL) : Esports

COURSE TITLE (SHORT) : Esports

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID :

CATALOG DESCRIPTION

ATHPE 180 is an advanced course designed for students who plan to compete at the collegiate level in esports. This course emphasizes advanced skill, theory, tactics, communication, strategy and intercollegiate competition. Student-athletes are required to meet the standards of the California Community College Athletic Association (CCCAA) eligibility guidelines and decorum policies and/or those of the National Esports Association (NEA).

CATALOG NOTES

ATHPE 180 is designed for the intercollegiate esports team. This course does not meet Physical Education graduation requirements.

Total Lecture Units:1.50

Total Laboratory Units: 1.00

Total Course Units: 2.50

Total Lecture Hours:27.00

Total Laboratory Hours: 54.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 81.00

PRECONDITIONS FOR ENROLLMENT
None

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1				operate a key board and/or mouse or game console	Yes
2				access stable internet for practice and tournament play	Yes
3				participate in rigorous physical and mental activity	Yes
4				utilize verbal communication necessary for collegiate competition	Yes
5				demonstrate how to apply workable solutions within a team environment	Yes

EXIT STANDARDS

1. develop an appreciation of esports in terms of sportsmanship and fair play, practice ethic, and teamwork
2. develop a high skill level in esports
3. analyze and understand offensive and defensive strategies as they apply to competitive situations
4. recognize the role of nutrition in athletic performance
5. apply and break down offensive and defensive schemes
6. integrate conditioning and strength training into weekly practices
7. demonstrate the ability to work with a team as a unit and develop team concepts
8. identify professional roles and opportunities for amateur and professional esports
9. identify the role of the California Community College Athletic Association (CCCAA) and/or NCAA to off-season training and competition
10. Evaluate and explain the structural and cultural barriers that limit players of color, females, LGBTQ and disadvantaged in the gaming community.

STUDENT LEARNING OUTCOMES

1 implement and apply technical and tactical skills necessary for collegiate competition

2 integrate and execute advanced cooperative skills needed to perform at a high level of play

3 demonstrate and apply safety rules and procedures to effectively participate in a collegiate sport

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours

1	Team Philosophies and Rules • Sportsmanship • Team rules • Individual/team goal setting • NCAA rules and regulations • CCCAA Decorum Policies	9	0	9

2	Safety for eSports • Posture and injury prevention • Stretching • Hydration/Nutrition • Mental health • Hygiene	9	0	9
3	Fundamental Conditioning Skills for eSports • Agility • Coordination • Muscular strength and range of motion • Muscular and cardiovascular endurance	0	16	16
4	Advanced Fundamental Skills in Esports • Hand-eye coordination • Macro skills • Micro skills • Personal mechanics • Positioning • Focus • Reaction time • Information seeking and processing	0	19	19
5	Advanced Game Strategy • Timing • Map control • Team awareness • Decision making process • Objective control	0	19	19

6	Understanding Team Dynamics • Creating a positive environment • Controlling emotions • Effective communication • Individual roles • Adapting play style	8	0	8
7	Definitions of Diversity, Inclusion, inequality and discrimination in Sports Competition • Gender • Race/ethnicity • Sexuality • Religion	1	0	1
				81

OUT OF CLASS ASSIGNMENTS

1 game evaluation (e.g. written evaluations regarding positive and negative performances with player feedback)
2 goal setting (e.g. written re-evaluation of goal performance every week)
3 game analysis (e.g. written summary and review of game film both team and individual)
4 statistical scouting (e.g. evaluation of individual or team game statistics)

METHODS OF EVALUATION

1 written play exams (e.g. diagram test for defense)
2 video and statistical analysis of practices and games
3 competitions

METHODS OF INSTRUCTION

☑ Lecture
☑ Laboratory

☑ Studio
☑ Discussion
☑ Multimedia
☐ Tutorial
☐ Independent Study

☑ Collaboratory Learning
☑ Demonstration
☐ Field Activities (Trips)
☑ Guest Speakers
☑ Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
IESF Competition Regulations	Supplemental	IESF			International ESports Federation		2020
Understanding Esports An Introduction to the Global Phenomenon	Supplemental	Lexington Books	1		Edited by Ryan Rogers	978-1-4985-8980-2	2019
Raising the Stakes E-Sports and the Professionalization of Computer Gaming	Supplemental	MIT Press	1	Paperback	TL Taylor	9780262017374	2015

COURSE OUTLINE : BIOL 140
D Credit – Degree Applicable
COURSE ID

PROPOSAL

COURSE DISCIPLINE : BIOL

COURSE NUMBER : 140

COURSE TITLE (FULL) : Introduction to Biotechnology

COURSE TITLE (SHORT) : Intro to Biotech

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID : Biotech 101

CATALOG DESCRIPTION

BIOL 140 is a general introduction of biology as it relates to the field of biotechnology. Topics include the fundamental chemical processes common in prokaryotic and eukaryotic biology, chemistry of bio-molecules (proteins, enzymes, nucleic acids and lipids), cellular and molecular biology, basic immunology, and classical and molecular genetics with an emphasis on gene expression and genetic engineering. Lecture content also includes the history, business and ethics of biotechnology. The laboratory addresses basic skills and techniques common to the biotechnology industry. Laboratory topics include the measurement of activity and quantity of proteins, growth and manipulation of bacteria, genetic engineering and antibody methods. This course is intended for, but not limited to, students majoring in biotechnology and as a general education option for all students, including non-majors.

CATALOG NOTES
N/A

Total Lecture Units:3.00

Total Laboratory Units: 1.00

Total Course Units: 4.00

Total Lecture Hours:54.00

Total Laboratory Hours: 54.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 108.00

PRECONDITIONS FOR ENROLLMENT

And/Or	Course	Type	Req. Is Being
	CHEM - 110 - Elements of General Chemistry	Recommended Preparation	Added
Or	CHEM - 120 - Fundamentals Of College Chemistry (Inorganic)	Recommended Preparation	Added
&	ENGL - 101 - Introduction to College Reading and Composition	Recommended Preparation	Added
&	MATH - 100 - College Algebra	Recommended Preparation	Added

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	CHEM	110	Elements of General Chemistry	perform laboratory experiments correctly using appropriate techniques and safety procedures;	Yes
2	CHEM	120	Fundamentals Of College Chemistry (Inorganic)	identify and describe basic chemical data, rules, and laws.	Yes
3	ENGL	101	Introduction to College Reading and Composition	Read, analyze, and evaluate a variety of primarily non-fiction readings for content, context, and rhetorical merit with consideration of tone, audience, and purpose;	Yes
4	ENGL	101	Introduction to College Reading and Composition	write timed, in-class essays exhibiting acceptable college-level control of mechanics, organization, development, and coherence;	Yes
5	ENGL	101	Introduction to College Reading and Composition	integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism;	Yes
6	ENGL	101	Introduction to College Reading and Composition	find, evaluate, analyze, and interpret primary and secondary sources, incorporating them into written essays using appropriate documentation format;	Yes
7	ENGL	101	Introduction to College Reading and Composition	proofread and edit essays for presentation so they exhibit no disruptive errors in English grammar, usage, or punctuation.	Yes

8	MATH	100	College Algebra	Analyze the following functions: polynomial, rational, radical, absolute value, exponential and logarithmic (including definitions, evaluation, and domain and range);	Yes
9	MATH	100	College Algebra	graph functions, including asymptotic behavior, intercepts, vertices and transformations;	Yes
10	MATH	100	College Algebra	perform operations on functions;	Yes
11	MATH	100	College Algebra	solve equations including: linear, polynomial, radical, rational, absolute value, exponential and logarithmic;	Yes
12	MATH	100	College Algebra	model and solve STEM application problems;	Yes

Exit Standards

1. List the morphologic and chemical differences between prokaryotic and eukaryotic cells
2. Define and distinguish among atoms, molecules, compounds, chemical bonds, mechanisms of chemical bond formation, and components of biological molecules
3. Construct the flow diagram of gene expression from DNA to protein
4. Translate the triplet code of DNA into primary protein structure
5. Assess the role of basic Mendelian genetics
6. Compare and contrast current applications of biotechnology to the areas of medicine, agriculture, diagnostics, and the environment
7. Explain evolution from a genetic perspective
8. Evaluate a recent development in the field of biotechnology from an ethical perspective
9. Demonstrate pipetting skills
10. Explain the importance of Good Laboratory Practices and record keeping
11. Prepare and analyze graphs
12. Explain how an antibody-based assay works (e.g. ELISA)
13. Perform bacterial transformation

14. Use of aseptic techniques in lab procedures, such as handling of bacteria, microbiology and molecular biology work.
15. Demonstrate proficiency in basic molecular techniques (e.g. DNA and protein analysis techniques)
16. Identify parts of a microscope
17. Use a microscope to view specimens
18. Employ a lab protocol and explain deviations from the protocol

STUDENT LEARNING OUTCOMES

1. Analyze the differences between eukaryote and prokaryote cell structures and the importance of the four biomolecules.
2. Apply the concepts of genetics and gene expression to applications in biotechnology and biomanufacturing.
3. Demonstrate basic laboratory and safety skill, Good Laboratory Practices as defined by industry standards, and record keeping.
4. Demonstrate basic molecular biology techniques in protein, antibodies, and DNA analysis pertaining to biotechnology.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Overview of biotechnology • History of biotechnology • GMOS (genetically modified organisms) and ethical aspects of biotechnology (e.g. gene manipulation) • Careers in biotechnology	7	0	7
2	Techniques in biotechnology • Cloning, recombinant DNA technology • PCR (polymerase chain reaction) • Gel electrophoresis • Enzymes	6	0	6

3	Applications • Medicine • Agriculture • Diagnostics • Environment/Energy • Fuels	2	0	2
4	Biomolecules and atomic structure • Atoms • Molecules • Compounds • Mechanisms of chemical bond formation • Biomolecule structures and features: carbohydrates, lipids, proteins, nucleic acids	6	0	6
5	Cell biology (prokaryotic/eukaryotic) • Morphologic differences • Differences in DNA • Differences in gene expression	6	0	6
6	Double-stranded DNA molecule • Alpha-helix • DNA replication • Meiosis and mitosis	5	0	5
7	Gene expression and the genetic code • Transcription from DNA to mRNA • Translation from mRNA to a protein	7	0	7
8	Basic Mendelian genetics including inheritance of traits • Dominant and recessive traits • Inheritance of traits • Autosomal and sex-linked disorders	4.5	0	4.5
9	Evolution from the genetic perspective	3	0	3

10	Basic physiology such as • Homeostasis • The immune system	3	0	3
11	Introduction to Energy/Metabolism • Photosynthesis • Cellular respiration	4.5	0	4.5
12	Introduction to biotechnology and laboratory • Good manufacturing practices (aseptic and sterile techniques) • Introduction to laboratory equipment and laboratory safety	0	3	3
13	Protein techniques • Protein assays • Introduction to enzymes	0	5	5
14	DNA techniques • DNA electrophoresis • Bacterial transformation • Isolation of plasmid DNA/restriction digestion	0	7	7
15	Antibody methods • ELISA assay • Home pregnancy test	0	3	3
16	Microbiology techniques • Streaking bacteria • Use of microscope • Streaking bacteria • Gram staining	0	8	8

17	Basic lab skills • Laboratory measurements (including accuracy versus precision) • The pH meter, working safely with acids and bases) • Pipetting skills	0	8	8
18	Basic lab skills • Good Laboratory Practices (record keeping, following protocols) • Laboratory notebook documentation	0	6	6
19	Basic lab skills • Lab safety guidelines • Aseptic and sterile techniques • Disposal of hazardous materials, use of MSDS (Material Safety Data Sheets)	0	8	8
20	Basic lab skills • The metric system • Graphs	0	6	6
				108

OUT OF CLASS ASSIGNMENTS

1 Field trip
2 Reading assigned chapters in course textbook(s), laboratory manual, and/or relevant scientific articles
3 Maintaining lab notebook that contains laboratory protocols (e.g. a written protocol that includes the title, purpose, materials needed, procedures, and expected results)
4 Homework assignment aimed at explaining and understanding major concept (e.g. problem solving on concept of protein synthesis, metabolism, and DNA replication) 5 Pre-lab quizzes.

METHODS OF EVALUATION

1 Class presentation on relevant topics in biotechnology.
2 Regular class and laboratory activities, experiments related to course topics.
3 Writing assignments that assess the ability to apply the theory of Good Laboratory Pracitices to reports and lab notebooks.
4 Laboratory practica that assess the ability to prepare and analyze graphs, follow a protocol, demonstrate basic lab skills and workplace competency, and explain deviations from the protocol.

5 In class objective written examinations and quizzes that test for definitions and application of major biological concepts.

METHODS OF INSTRUCTION

- [x] Lecture
- [x] Laboratory
- [ ] Studio
- [x] Discussion
- [x] Multimedia
- [ ] Tutorial
- [ ] Independent Study
- [x] Collaboratory Learning
- [x] Demonstration
- [x] Field Activities (Trips)
- [x] Guest Speakers
- [x] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Introduction to Biotechnology	Required	Pearson	4	print	Thienman, Willian J.	978-0134650197	2018
Campbell Essential Biology	Required	Pearson	7	Print	Simon, Eric J	978-0134812946	2018
Campbell Essential Biology with Physiology	Supplemental	Pearson	6	Print	Simon, Eric J.	0321602072	2018
Introduction to Biotechnology	Required	LibreTexts	1	Electronic	Orange County Biotechnology Education Collaborative	None, Free online	2020
. Basic Laboratory Methods for Biotechnology	Supplemental	Pearson	2	Print; classic	Seidman, Lisa A.	9780321570147	2009

COURSE OUTLINE : BIOL 141
D Credit – Degree Applicable
COURSE ID

PROPOSAL

COURSE DISCIPLINE : BIOL

COURSE NUMBER : 141

COURSE TITLE (FULL) : Applied Biotechnology I with Laboratory

COURSE TITLE (SHORT) : Applied Biotech I

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID : BIOT C-ID 150

CATALOG DESCRIPTION

BIOL 141 prepares students for the biotechnology industry by emphasizing the core concepts practiced in a bioscience laboratory. Topics include laboratory math, basic chemistry of buffers, laboratory safety, quality control, biological molecules, gene expression, cell structure and molecular biology techniques. This course introduces students to standard biotechnology laboratory skills including laboratory measurements, preparation of media and solutions, data collection and evaluation, basic separation methods, molecular techniques, aseptic techniques and documentation. Good communication and collaborative work are emphasized. This course is intended for, but not limited to, students preparing for a career in biotechnology.

CATALOG NOTES

N/A

Student will not receive unit credit if BIOL 298 has been taken with a grade of “C” or better.

Total Lecture Units:2.00

Total Laboratory Units: 2.00

Total Course Units: 4.00

Total Lecture Hours:36.00

Total Laboratory Hours: 108.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 144.00

PRECONDITIONS FOR ENROLLMENT

And/Or	Course	Type	Req. Is Being
Or	BIOL - 101 - General Biology I	Recommended Preparation	Added
Or	BIOL - 112 - Microbiology	Recommended Preparation	Added
Or	BIOL - 122 - Introduction to Biology	Recommended Preparation	Added
&	CHEM - 110 - Elements of General Chemistry	Recommended Preparation	Added
Or	CHEM - 120 - Fundamentals Of College Chemistry (Inorganic)	Recommended Preparation	Added
&	ENGL - 101 - Introduction to College Reading and Composition	Recommended Preparation	Added
&	MATH - 100 - College Algebra	Recommended Preparation	Added
	BIOL - 140 - Introduction to Biotechnology	Recommended Preparation	Added

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	BIOL	101	General Biology I	Identify the properties of lipids, carbohydrates, proteins, and nucleic acids;	Yes
2	BIOL	101	General Biology I	describe the structure of prokaryotic and eukaryotic cells;	Yes
3	BIOL	101	General Biology I	describe and identify the different stages in mitosis;	Yes
4	BIOL	101	General Biology I	describe the processes of DNA replication, transcription, and translation;	Yes
5	BIOL	101	General Biology I	explain the basic mechanisms of gene regulation in prokaryotes and eukaryotes.	Yes
6	BIOL	101	General Biology I	demonstrate proper use of laboratory equipment including the microscope, spectrophotometer, and micropipettes;	Yes
7	BIOL	101	General Biology I	demonstrate proficiency with data collection, analysis, and graphical representation.	Yes
8	BIOL	112	Microbiology	demonstrate a general understanding of the taxonomy and major characteristics of the various microorganisms	No

9	BIOL	112	Microbiology	demonstrate general knowledge of the physical and chemical structure of prokaryotes and eukaryotes	Yes
10	BIOL	112	Microbiology	demonstrate an understanding of the biochemical processes of the cell, including cell respiration, DNA replication, genetic recombination, transcription, translation, and cellular transport	Yes
11	BIOL	112	Microbiology	demonstrate an understanding of the physical and chemical methods and mechanisms used to control microbial growth	Yes
12	BIOL	112	Microbiology	demonstrate proper aseptic techniques and proficiency in performing various staining procedures and biochemical tests on microorganisms	Yes
13	BIOL	122	Introduction to Biology	Describe the structure of atoms, the properties of water and structure and function of biological macromolecules;	Yes
14	BIOL	122	Introduction to Biology	describe the flow of information from DNA to protein;	Yes
15	BIOL	122	Introduction to Biology	describe the mechanisms of evolution including natural selection;	No
16	BIOL	122	Introduction to Biology	compare prokaryotic and eukaryotic cells, and describe the structure and function of eukaryotic organelles;	Yes

17	CHEM	110	Elements of General Chemistry	clearly explain qualitative chemical concepts and trends;	Yes
18	CHEM	110	Elements of General Chemistry	perform laboratory experiments correctly using appropriate techniques and safety procedures;	Yes
19	CHEM	110	Elements of General Chemistry	describe, model, and analyze microscopic behavior to explain macroscopic properties as applied to such areas as chemical bonding, gas laws, atomic theory, acids, bases, nuclear chemistry, and oxidationreduction.	Yes
20	CHEM	120	Fundamentals Of College Chemistry (Inorganic)	evaluate scientific statements and develop an opinion as to their validity	Yes

21	CHEM	120	Fundamentals Of College Chemistry (Inorganic)	identify and describe basic chemical data, rules, and laws.	Yes

22	ENGL	101	Introduction to College Reading and Composition	write timed, in-class essays exhibiting acceptable college-level control of mechanics, organization, development, and coherence;	Yes
23	ENGL	101	Introduction to College Reading and Composition	integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism;	Yes
24	ENGL	101	Introduction to College Reading and Composition	find, evaluate, analyze, and interpret primary and secondary sources, incorporating them into written essays using appropriate documentation format;	Yes
25	ENGL	101	Introduction to College Reading and Composition	proofread and edit essays for presentation so they exhibit no disruptive errors in English grammar, usage, or punctuation.	Yes
26	MATH	100	College Algebra	Analyze the following functions: polynomial, rational, radical, absolute value, exponential and logarithmic (including definitions, evaluation, and domain and range);	Yes
27	MATH	100	College Algebra	graph functions, including asymptotic behavior, intercepts, vertices and transformations;	Yes
28	MATH	100	College Algebra	perform operations on functions;	Yes
29	MATH	100	College Algebra	solve equations including: linear, polynomial, radical, rational, absolute value, exponential and logarithmic;	Yes
30	MATH	100	College Algebra	model and solve STEM application problems;	Yes

31	BIOL	140	Introduction to Biotechnology	List the morphologic and chemical differences between prokaryotic and eukaryotic cells	Yes
32	BIOL	140	Introduction to Biotechnology	Define and distinguish among atoms, molecules, compounds, chemical bonds, mechanisms of chemical bond formation, and components of biological molecules	Yes

33	BIOL	140	Introduction to Biotechnology	Construct the flow diagram of gene expression from DNA to protein	Yes
34	BIOL	140	Introduction to Biotechnology	Translate the triplet code of DNA into primary protein structure	Yes
35	BIOL	140	Introduction to Biotechnology	Assess the role of basic Mendelian genetics	Yes
36	BIOL	140	Introduction to Biotechnology	Compare and contrast current applications of biotechnology to the areas of medicine, agriculture, diagnostics, and the environment	Yes
37	BIOL	140	Introduction to Biotechnology	Evaluate a recent development in the field of biotechnology from an ethical perspective	Yes
38	BIOL	140	Introduction to Biotechnology	Demonstrate pipetting skills	Yes
39	BIOL	140	Introduction to Biotechnology	Explain the importance of Good Laboratory Practices and record keeping	Yes
40	BIOL	140	Introduction to Biotechnology	Prepare and analyze graphs	Yes
41	BIOL	140	Introduction to Biotechnology	Explain how an antibody-based assay works (e.g. ELISA)	Yes
42	BIOL	140	Introduction to Biotechnology	Perform bacterial transformation	Yes
42	BIOL	140	Introduction to Biotechnology	Use of aseptic techniques in lab procedures, such as handling of bacteria, microbiology and molecular biology work.	Yes
44	BIOL	140	Introduction to Biotechnology	Demonstrate proficiency in basic molecular techniques (e.g. DNA and protein analysis techniques)	Yes
45	BIOL	140	Introduction to Biotechnology	Identify parts of a microscope	Yes
46	BIOL	140	Introduction to Biotechnology	Use a microscope to view specimens	Yes

47	BIOL	140	Introduction to Biotechnology	Employ a lab protocol and explain deviations from the protocol	Yes

EXIT STANDARDS

1. Describe cell structure
2. Apply principals of basic chemistry of buffers and pH to biological molecules
3. Define and distinguish among biological molecules
4. Construct the flow diagram of gene expression from DNA to protein
5. Explain recombinant DNA
6. Convert between metric units
7. Perform basic dilutions
8. Perform calculations related to reagents, solutions and media formulations
9. Demonstrate Good Laboratory Practices (as defined by industry) and record keeping in a laboratory notebook
10. Prepare and analyze graphs
11. Grow cells using aseptic techniques
12. Demonstrate ability to use measurement instrumentation properly
13. Perform a concentration assay for DNA or Protein
14. Successfully perform a basic bio-separation technique such as column chromatography
15. Perform a molecular technique such as DNA sizing electrophoresis
16. Demonstrate work-readiness skills

STUDENT LEARNING OUTCOMES

1. Apply and demonstrate good laboratory safety and aseptic techniques to make appropriate solutions and culture media to grow cells.
2. Apply knowledge of cell, molecular, and microbiology to isolate, quantify, and study the important biomolecules of cells.
3. Properly record and document data and data analyses in an organized lab notebook.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Scientific method	1.5	0	1.5
2	Biotechnology overview	1.5	0	1.5
3	Molecular and cell biology • Biological molecules (proteins, carbohydrates, lipids, nucleic acids) • Cell structures (prokaryotes and eukaryotes) • Gene expression • DNA technology and analysis • Cell culture and fermentation • Bioseparation (protein purification, agarose gel, etc.)	18	0	18
4	Bacterial cell culture methods • Preparation and sterilization of bacterial media • Growth and maintenance of bacterial cultures	1.5	0	1.5
5	Mammalian cell culture method • Preparation and sterilization of media for mammalian cells • Growth and maintenance of mammalian cultures	1.5	0	1.5
6	Laboratory math • Units of measurement and converting between units (metric system) • Graphical methods of analysis and data display • Various methods for expressing concentration • Calculation for molar and percent solution • Dilutions • Reagents, solutions and media formulations	6	0	6

7	Basic chemistry of buffers and pH	1	0	1
8	Common Laboratory Measurements • Weight • Volume • pH • Temperature • Spectrophotometry	2	0	2
9	Health and Safety • MSDS/SDS • Personal Protection Equipment • Contamination	1	0	1
10	Laboratory basic skills • Application of laboratory math	0	3	3
11	Laboratory basic skills • Micropipetting and serological pipetting skills	0	4	4
12	Laboratory basic skills • Laboratory safety practices	0	2	2
13	Laboratory basic skills • Aseptic techniques	0	3	3
14	Laboratory basic skills • Good manufacturing practices	0	3	3
15	Laboratory basic skills • Preparation of various solutions at different concentrations	0	6	6
16	Laboratory basic skills • Proper dilution of solutions, media	0	3	3
17	Laboratory basic skills • Preparation and analysis of buffers	0	3	3

18	Laboratory basic skills • Preparation of biological solutions (media preparation, autoclaving, pH determination and adjustments, measuring, balances, volumes)	0	6	6
19	Laboratory basic skills • Agarose gels testing	0	3	3
20	Laboratory basic skills • Uses of polyacrylamide gels	0	3	3
21	Laboratory basic skills • Spectrophotometry	0	3	3
22	General biotechnology and molecular techniques used in industry: DNA • Bacterial cell transformation	0	3	3
23	General biotechnology and molecular techniques used in industry: DNA • Plasmid isolation	0	3	3
24	General biotechnology and molecular techniques used in industry: DNA • Chromosome isolation	0	3	3
25	General biotechnology and molecular techniques used in industry: DNA • Gel electrophoresis	0	3	3
26	General biotechnology and molecular techniques used in industry: DNA • Restriction digestion and analysis	0	3	3
27	General biotechnology and molecular techniques used in industry: DNA • Cloning	0	6	6

28	General biotechnology and molecular techniques used in industry: DNA • PCR	0	3	3
29	General biotechnology and molecular techniques used in industry: Proteins • Protein isolation	0	3	3
30	General biotechnology and molecular techniques used in industry: Proteins • Protein quantification	0	2	2
31	General biotechnology and molecular techniques used in industry: Proteins • Western blot	0	6	6
32	General biotechnology and molecular techniques used in industry: Proteins • Column chromatography	0	3	3
33	General biotechnology and molecular techniques used in industry: Antibodies • ELISA (enzyme-linked immunosorbent assay) • Western Blot	0	3	3
34	Inoculation/growth of cell cultures	0	6	6
35	Lab safety	0	2	2
36	Documentation and record keeping • Physical lab notebook • E-notebook (e.g. Benchling.com)	0	3	3
37	Data collection and evaluation	0	3	3
38	Standard operating procedures (SOP)	0	3	3

39	Work-readiness skills • Oral communication, presentation • Written communication • Teamwork, team building exercises • Industry expert and/or career counselor workshops • Resume writing • Interview skills • Job searching	2	8	10
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OUT OF CLASS ASSIGNMENTS

1 Reading assigned chapters in course textbook(s), laboratory manual, and/or relevant scientific articles.

2 Homework assignment aimed at explaining and recognizing major concepts (e.g. making buffers, dilutions, constructing recombinant DNA, restriction enzyme analysis and gel electrophoresis.)

3 Maintaining lab notebook that contains laboratory protocols (e.g. a written protocol that includes the title, purpose, materials needed, procedures, and results) and test results. 4 Pre-lab quizzes.

5 Written lab report.

METHODS OF EVALUATION

1 Class presentation

2 Class and laboratory activities and experiments

3 Writing assignments that assess the ability to apply good laboratory practices to reports and lab notebooks (e.g. data collection and modifications to laboratory protocols, Standard Operating Procedures).

4 Laboratory practica that assess the ability to prepare and analyze graphs, follow a protocol, demonstrate basic lab skills and workplace competency, and explain deviations from the protocol.

5 Objective written examinations and quizzes that test for definitions and application of major concepts

6 Field trip

METHODS OF INSTRUCTION

- ☐ Lecture
- ☑ Laboratory
- ☐ Studio
- ☑ Discussion
- ☑ Multimedia
- ☐ Tutorial
- ☐ Independent Study
- ☑ Collaboratory Learning
- ☑ Demonstration
- ☑ Field Activities (Trips)
- ☑ Guest Speakers
- ☑ Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Introduction to Biotechnology	Required	Pearson	4	Print	Thienman, Willian J.	978-0134650197	2018
Campbell Essential Biology	Supplemental	Pearson	7	Print	Simon, Eric J.	978-0134812946	2018
Laboratory Manual for Biotechnology and Laboratory Science: The Basics. Boston	Supplemental	Pearson		Print	Seidman, Lisa A.	9780321644022	2011
. Biotechnology: A Laboratory Skills Course	Required	Bio-Rad	2	Print	Brown, J. Kirk	9780983239635, 0983239630	2018
Biomanufacturing Laboratory Manual	Required	Northeast Biomanufacturing Center		Online	Northeast Biomanufacturing Center and Collaborative		2012

COURSE OUTLINE : BIOL 142
D Credit – Degree Applicable
COURSE ID

PROPOSAL

COURSE DISCIPLINE : BIOL

COURSE NUMBER : 142

COURSE TITLE (FULL) : Applied Biotechnology II with Laboratory

COURSE TITLE (SHORT) : Applied Biotech II

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID : BIOT C-ID 220

CATALOG DESCRIPTION

BIOL 142 is the second course in the Applied Biotechnology series. It introduces advanced concepts and laboratory techniques in biotechnology. Building on the basic skills established in BIOL 141, students will learn methodology in large-scale protein production and protein purification techniques, including sample preparation. It provides hands-on training with chromatography systems and assays used in industry and research laboratories. This course also covers methods utilized for eukaryotic cell culture protein purification. Application of current Good Manufacturing Process (cGMP), Good Laboratory Practice (GLP), and Standard Operating Procedures (SOP's) in relation to these techniques will be addressed. Good communication, collaborative work and workreadiness skills are emphasized. This course is intended for, but not limited to, students preparing for a career in biotechnology.

CATALOG NOTES

N/A

Total Lecture Units:2.00

Total Laboratory Units: 2.00

Total Course Units: 4.00

Total Lecture Hours:36.00

Total Laboratory Hours: 108.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 144.00

PRECONDITIONS FOR ENROLLMENT

And/Or	Course	Type	Req. Is Being
	BIOL - 101 - General Biology I	Recommended Preparation	Added
Or	BIOL - 112 - Microbiology	Recommended Preparation	Added
Or	BIOL - 122 - Introduction to Biology	Recommended Preparation	Added
Or	BIOL - 298 - Undergraduate Research in Microbiology and Molecular Biology	Prerequisite	Added
&	CHEM - 101 - General Chemistry	Recommended Preparation	Added
Or	BIOL - 140 - Introduction to Biotechnology	Recommended Preparation	Added
&	BIOL - 141 - Applied Biotechnology I with Laboratory	Prerequisite	Added

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	BIOL	101	General Biology I	Identify the properties of lipids, carbohydrates, proteins, and nucleic acids;	Yes
2	BIOL	101	General Biology I	describe the structure of prokaryotic and eukaryotic cells;	Yes
3	BIOL	101	General Biology I	describe and identify the different stages in mitosis;	Yes
4	BIOL	101	General Biology I	describe the processes of DNA replication, transcription, and translation;	Yes
5	BIOL	101	General Biology I	explain the basic mechanisms of gene regulation in prokaryotes and eukaryotes.	Yes
6	BIOL	101	General Biology I	demonstrate proper use of laboratory equipment including the microscope, spectrophotometer, and micropipettes;	Yes
7	BIOL	101	General Biology I	demonstrate proficiency with data collection, analysis, and graphical representation.	Yes
8	BIOL	112	Microbiology	demonstrate general knowledge of the physical and chemical structure of prokaryotes and eukaryotes	Yes

9	BIOL	112	Microbiology	demonstrate an understanding of the biochemical processes of the cell, including cell respiration, DNA replication, genetic recombination, transcription, translation, and cellular transport	Yes
10	BIOL	112	Microbiology	demonstrate an understanding of the physical and chemical methods and mechanisms used to control microbial growth	Yes
11	BIOL	112	Microbiology	demonstrate proper aseptic techniques and proficiency in performing various staining procedures and biochemical tests on microorganisms	Yes
12	BIOL	122	Introduction to Biology	Describe the structure of atoms, the properties of water and structure and function of biological macromolecules;	Yes
13	BIOL	122	Introduction to Biology	describe the flow of information from DNA to protein;	Yes
14	BIOL	122	Introduction to Biology	compare prokaryotic and eukaryotic cells, and describe the structure and function of eukaryotic organelles;	Yes
15	BIOL	298	Undergraduate Research in Microbiology and Molecular Biology	Demonstrate aseptic laboratory techniques and safe laboratory practices;	Yes
16	BIOL	298	Undergraduate Research in Microbiology and Molecular Biology	communicate effectively in a collaborative work environment;	Yes
17	BIOL	298	Undergraduate Research in Microbiology and Molecular Biology	apply chemical formulas to make appropriate media;	Yes
18	BIOL	298	Undergraduate Research in Microbiology and Molecular Biology	troubleshoot problems when carrying out experiments;	Yes

19	BIOL	298	Undergraduate Research in Microbiology and Molecular Biology	keep meticulous daily records of lab activities, experimental procedures, outcomes of experiments, and creative thoughts in a lab notebook;	Yes
20	BIOL	298	Undergraduate Research in Microbiology and Molecular Biology	demonstrate competence in use and application of various equipment and techniques used in molecular biology and microbiology;	Yes
21	BIOL	298	Undergraduate Research in Microbiology and Molecular Biology	read and analyze peer-reviewed articles in the field of study;	Yes
22	CHEM	101	General Chemistry	utilize bonding theories to describe the chemical nature of ions and molecules	Yes
23	CHEM	101	General Chemistry	demonstrate the proper use of laboratory equipment and the ability to handle chemicals safely	Yes
24	CHEM	101	General Chemistry	describe the scientific method and apply it to the development of the science of chemistry	Yes
25	CHEM	101	General Chemistry	demonstrate an understanding of intermolecular forces and apply those forces to the nature of solids and liquids	No
26	BIOL	140	Introduction to Biotechnology	List the morphologic and chemical differences between prokaryotic and eukaryotic cells	Yes
27	BIOL	140	Introduction to Biotechnology	Define and distinguish among atoms, molecules, compounds, chemical bonds, mechanisms of chemical bond formation, and components of biological molecules	Yes
28	BIOL	140	Introduction to Biotechnology	Construct the flow diagram of gene expression from DNA to protein	Yes
29	BIOL	140	Introduction to Biotechnology	Translate the triplet code of DNA into primary protein structure	Yes

30	BIOL	140	Introduction to Biotechnology	Assess the role of basic Mendelian genetics	Yes
31	BIOL	140	Introduction to Biotechnology	Compare and contrast current applications of biotechnology to the areas of medicine, agriculture, diagnostics, and the environment	Yes
32	BIOL	140	Introduction to Biotechnology	Explain evolution from a genetic perspective	No
33	BIOL	140	Introduction to Biotechnology	Evaluate a recent development in the field of biotechnology from an ethical perspective	Yes
34	BIOL	140	Introduction to Biotechnology	Demonstrate pipetting skills	Yes
35	BIOL	140	Introduction to Biotechnology	Explain the importance of Good Laboratory Practices and record keeping	Yes
36	BIOL	140	Introduction to Biotechnology	Prepare and analyze graphs	Yes
37	BIOL	140	Introduction to Biotechnology	Explain how an antibody-based assay works (e.g. ELISA)	Yes
38	BIOL	140	Introduction to Biotechnology	Perform bacterial transformation	Yes
39	BIOL	140	Introduction to Biotechnology	Use of aseptic techniques in lab procedures, such as handling of bacteria, microbiology and molecular biology work.	Yes
40	BIOL	140	Introduction to Biotechnology	Demonstrate proficiency in basic molecular techniques (e.g. DNA and protein analysis techniques)	Yes
41	BIOL	140	Introduction to Biotechnology	Identify parts of a microscope	Yes
42	BIOL	140	Introduction to Biotechnology	Use a microscope to view specimens	Yes

43	BIOL	140	Introduction to Biotechnology	Employ a lab protocol and explain deviations from the protocol	Yes
44	BIOL	141	Applied Biotechnology I with Laboratory	Apply principals of basic chemistry of buffers and pH to biological molecules	Yes
45	BIOL	141	Applied Biotechnology I with Laboratory	Explain recombinant DNA	Yes
46	BIOL	141	Applied Biotechnology I with Laboratory	Be able to convert between metric units	Yes
47	BIOL	141	Applied Biotechnology I with Laboratory	Be able to perform basic dilutions	Yes
48	BIOL	141	Applied Biotechnology I with Laboratory	Perform calculations related to reagents, solutions and media formulations	Yes
49	BIOL	141	Applied Biotechnology I with Laboratory	Demonstrate Good Laboratory Practices and record keeping in a laboratory notebook	Yes
50	BIOL	141	Applied Biotechnology I with Laboratory	Prepare and analyze graphs	Yes
51	BIOL	141	Applied Biotechnology I with Laboratory	Grow cells using aseptic techniques	Yes
52	BIOL	141	Applied Biotechnology I with Laboratory	Demonstrate ability to use measurement instrumentation properly	Yes
53	BIOL	141	Applied Biotechnology I with Laboratory	Perform a concentration assay for DNA or Protein	Yes
54	BIOL	141	Applied Biotechnology I with Laboratory	Successfully perform a basic bioseparation technique such as column chromatography	Yes

55	BIOL	141	Applied Biotechnology I with Laboratory	Perform a molecular technique such as DNA sizing electrophoresis	Yes

EXIT STANDARDS

1 Correctly perform laboratory calculations.
2 Correctly use precision measuring devices.
3 Describe the principles of commonly used protein assays.
4 Perform chromatography and other separation methods for protein purification.
5 Describe and/or demonstrate techniques for isolation of proteins from cells and tissue.
6 Perform standard column chromatography techniques.
7 Correctly record procedures and maintain an organized laboratory notebook.
8 Describe biological concepts related to basic DNA recombinant technology and protein isolation and analysis that are routinely used in the biotechnology laboratory.
9 Use purification analysis data to improve purification procedure.
10 Demonstrate work-readiness skills

STUDENT LEARNING OUTCOMES

1 Manufacture proteins by transforming cells with recombinant plasmids and isolate, purify, and analyze the quantity and quality of the protein.
2 Demonstrate industry standards of Good Manufacturing Practice (GMP), Good Documentation Practice (GDP), and Standard Operating Practice (SOP) while carrying out the laboratory procedures and experiments.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Overview of cell biology and genetics • Overview of prokaryotic and eukaryotic cell structures • Overview of gene structure and gene expression in prokaryotes and eukaryotes	6	0	6

2	Cloning strategies • Protein structure and modification in prokaryotes and eukaryotes • Cloning strategies for inducible protein expression • DNA analysis (restriction enzymes, gel electrophoresis, spectrophotometer for quantification)	7	0	7
3	Concentration and dilution calculations and generation of standard curve for protein analysis	2	0	2
4	Preparation of buffers, resins, and reagents used in protein purification	3	0	3
5	Correct use of equipment used for protein purification techniques	3	0	3
6	Basic column Chromatographic methods • Column chromatography • HPLC (High Performance Liquid Chromatography)	2	0	2
7	Quantitative analysis of chromatographic fractions and purified protein • SDS-PAGE (sodium dodecyl sulfate polyacrylamide gel electrophoresis) • Activity assay • Western blot	2.5	0	2.5
8	Principles of separation methods including centrifugation, chromatography (e.g., ion exchange, size exclusion, hydrophobic interaction, affinity), electrophoresis and filtration as related to protein purification and product analysis	3.5	0	3.5
9	Sample preparation (harvest, cell disruption, etc.)	1	0	1
10	Purification strategy design and data analysis	2	0	2
11	Contaminants and impurities	1	0	1

12	Industry practices • GLP (Good Laboratory Practice) • cGMP (Current Good Manufacturing Practice) • SOP's (Standard Operating Procedures) • Use of lab notebooks or other laboratory documentation methods (e.g. e-notebook, Benchling)	3	0	3
13	Perform calculations for preparation of solutions, buffer, media • for growth and maintenance of cell cultures • for protein purification • for gel electrophoresis	0	9	9
14	Upstream processing: genetic cloning and cell culture • Growth of cryogenic cells • Transformation of E. coli with reporter gene (e.g. GFP or lacZ)	0	4.5	4.5
15	Upstream processing: genetic cloning and cell culture • Growth of cells in large volume • Introduction to use of bioreactor • Maintenance of bioreactor	0	8	8
16	Upstream processing: genetic cloning and cell culture • Spectrophotometry, measurement of cell density	0	6	6
17	Downstream processing: preparation of samples for protein purification • Protein extraction	0	8	8
18	Downstream processing: preparation of samples for protein purification • Analyze yield, protein quantification	0	8	8
19	Downstream processing: preparation of samples for protein purification • Protein purification: chromatography	0	9	9

20	Downstream processing: preparation of samples for protein purification • Protein purification: HPLC	0	9	9
21	Downstream processing: preparation of samples for protein purification • Protein purification: gel electrophoresis, SDS-PAGE	0	8	8
22	Downstream processing: preparation of samples for protein purification • Protein purification: Western blot	0	8	8
23	Perform calculations for data analysis	0	9	9
24	Write Standard Operating Procedures (SOPs)	0	5	5
25	Follow Good Documentation Practice (GDP) • Record keeping in organized lab notebooks or e-notebook. • Record and maintain documents in binders (batch record, media/buffer prep sheets, validation forms. • Record Data analyses.	0	9	9
26	Introduction to Good Manufacturing Practices (GMP) • GMP popcorn lab	0	3	3
27	Industry expert and career counselor workshops • Resume writing • Interview skills • Job searching	0	4.5	4.5
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OUT OF CLASS ASSIGNMENTS

1 Field trip;

2 Read relevant research articles;

3 Maintaining lab notebook that contains laboratory protocols (e.g. a written protocol that includes the title, purpose, materials needed, procedures, and expected results);

4 Lecture homework assignment to understand lecture concept;

5 Pre-lab quizzes;

6 Written lab report.

METHODS OF EVALUATION

1 Class presentation
2 Class and laboratory activities and experiments
3 Writing assignments that assess the ability to apply Good Laboratory Practices to reports and record keeping in lab notebooks (e.g. data collection and modifications to laboratory protocols, Standard Operating Procedures, lab report)
4 Laboratory practica that assess the ability to prepare and analyze graphs, follow a protocol, demonstrate basic lab skills and workplace competency, and explain deviations from the protocol
5 written examinations and quizzes

METHODS OF INSTRUCTION

- [x] Lecture
- [x] Laboratory
- [ ] Studio
- [x] Discussion
- [x] Multimedia
- [ ] Tutorial
- [ ] Independent Study
- [x] Collaboratory Learning
- [x] Demonstration
- [x] Field Activities (Trips)
- [x] Guest Speakers
- [x] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Introduction to Biotechnology	Required	Pearson	4	Print	Thienman, Willian J.	978-0134650197	2018
Campbell Essential Biology	Supplemental	Pearson	7	Print	Simon, Eric J.	978-0134812946	2018

Laboratory Manual for Biotechnology and Laboratory Science: The Basics.	Required	Pearson	2	Print	Seidman, Lisa A.	9780321644022	2011
Biotechnology: A Laboratory Skills Course	Required	Bio-Rad Laboratories, Inc.	2	Print	Brown, J. Kirk	9780983239635, 0983239630	2018
Biomanufacturing Laboratory Manual	Required	Northeast Biomanufacturing Center	1	on-line	Northeast Biomanufacturing Center and Collaborative		2012

COURSE OUTLINE : ESL 156
C Credit – Not Degree Applicable
COURSE ID

PROPOSAL

COURSE DISCIPLINE : ESL

COURSE NUMBER : 156

COURSE TITLE (FULL) : Reading and Vocabulary for ESL V Students

COURSE TITLE (SHORT) : Reading and Vocabulary V

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID :

CATALOG DESCRIPTION

ESL 156 is designed to help advanced Credit ESL students to read academic reading materials in order to analyze, discuss, and write about their understanding of the texts. The course places heavy emphasis on academic interdisciplinary vocabulary development. Students use various reading strategies to increase their reading comprehension of both fiction and non-fiction narrative texts.

CATALOG NOTES

N/A

Total Lecture Units:3.00

Total Laboratory Units: 0.00

Total Course Units: 3.00

Total Lecture Hours:54.00

Total Laboratory Hours: 0.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 54.00

PRECONDITIONS FOR ENROLLMENT

And/Or	Course	Type	Req. Is Being
	ESL - 151 - Reading and Composition V	Corequisite	Added
&	ESL - 155 - Listening And Speaking V	Corequisite	Added
&	ESL - 146 - Reading And Vocabulary For ESL IV Students	Prerequisite	Added

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	ESL	146	Reading And Vocabulary For ESL IV Students	comprehend academic reading passages at the high-intermediate credit ESL vocabulary level;	Yes
2	ESL	146	Reading And Vocabulary For ESL IV Students	deduce meaning of new vocabulary from context;	Yes
3	ESL	146	Reading And Vocabulary For ESL IV Students	write answers of 60-70 words in response to questions;	Yes
4	ESL	146	Reading And Vocabulary For ESL IV Students	write summaries of and responses to a text;	Yes
5	ESL	146	Reading And Vocabulary For ESL IV Students	paraphrase a reading passage.	Yes

EXIT STANDARDS

1. demonstrate comprehension of academic readings at the advanced credit ESL vocabulary level;
2. deduce meaning of new vocabulary from context;
3. reply to inference as well as recall questions on reading comprehension tests;
4. write answers of 70-80 words in response to questions;
5. write summaries of and responses to a text;
6. paraphrase a reading passage.

STUDENT LEARNING OUTCOMES

1 read academic passages at the advanced Credit ESL level;

2 utilize key target vocabulary learned throughout the semester at the advanced Credit ESL level.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Reading strategies, including: predicting, skimming, scanning, and identifying the thesis and the author's point of view	6	0	6
2	Academic reading passages from 4-20 pages or a book length text	10	0	10

3	Use of contextual clues to determine word meanings	6	0	6
4	Comprehension and recall of information	6	0	6
5	Inferring meaning from context	4	0	4
6	Paraphrasing and summarizing;	6	0	6
7	Distinguishing main ideas from details	6	0	6
8	Write responses to inference as well as recall questions	10	0	10
				54

OUT OF CLASS ASSIGNMENTS

1 laboratory work may be assigned in the ESL Computer Lab on reading and vocabulary modules;
2 written homework (e.g. 70- 80-word responses to an assigned reading);
3 vocabulary homework (e.g. definitions, synonyms/antonyms, sentence writing, word forms);
4 online workbooks;
5 reading responses (journal writing);
6 book report;
7 highlighting activities such as short/long stories from novels/texts;
8 written outlines of short/long stories;
9 summaries of short/long stories;
10 paraphrases of short/long stories.

METHODS OF EVALUATION

1 other criteria: 10% (homework, as described in out of class assignments).
2 final examination: 20% (division wide reading exam: 10%, instructor-written vocabulary section: 10%);
3 reading and vocabulary tests or quizzes: 30% (three to four);
4 reading responses and/or book report: 40%;

METHODS OF INSTRUCTION

☑ Lecture
☐ Laboratory
☐ Studio

☑ Discussion

☑ Multimedia
☐ Tutorial
☑ Independent Study
☑ Collaboratory Learning
☑ Demonstration
☐ Field Activities (Trips)
☐ Guest Speakers
☑ Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Pathways: Reading, Writing, and Critical Thinking 4	Required	NGL/Cengage	2	PRINT	Blass, Laurie	9781337407809	2018
21st Century Reading 4: Creative Reading and Thinking with TED Talks 4	Required	NGL/Cengage	1	PRINT	Blass, Laurie	9781305265721	2016
A Community of Readers: A Thematic Approach to Reading.	Required	NGL/Cengage	8	PRINT	Alexander, Roberta	9780357136621	2021
Mindscapes: Critical Reading Skills and Strategies	Required		2	PRINT	Carter, Christine	10-1435462343	2013
An Introduction to Critical Reading	Required		7	PRINT	McCraney, Leah	9780495801795	2011
Catch Me If You Can: The Amazing True Story of the Most Extraordinary Liar in the History of Fun and Profit	Required	Broadway Books	7	PRINT	Abagnale, Frank	9780767905381	2000
First They Killed My Father: A Daughter of Cambodia Remembers	Required	Mainstream Publishing	3	PRINT	Ung, Loung	9780062561305	2017
The Knock at the Door: A Mother's Survival of the Armenian Genocide	Required	Beaufort Books	1	PRINT	Ahnert, Margaret Ajemian	978-0825306839	2006
Miss Peregrine's Home for Peculiar Children	Required	Quirk Books	1	PRINT	Riggs, Ransom	9781594746031	2013
The Five People You Meet in Heaven	Required	Hachette Books	3	PRINT	Albom, Mitch	9780786868711	2014

COURSE OUTLINE : LING 102
D Credit – Degree Applicable
COURSE ID

PROPOSAL

COURSE DISCIPLINE : LING

COURSE NUMBER : 102

COURSE TITLE (FULL) : Sociolinguistics

COURSE TITLE (SHORT) : Sociolinguistics

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID :

CATALOG DESCRIPTION

LING 102 provides a foundation of terminology and methodology used in the current study of cultural and sociological areas of language. The course emphasizes aspects of societal variation (class, gender, ethnicity, age, and ability), geographic variation (dialects and style), contact variation (multilingualism, pidgins, and creoles), as well as language standardization issues (social justice, educational planning, and government policies). Drawing on a variety of modern linguistics concepts, students will be able to analyze, reason, and generalize from linguistic data representative of the diverse and varied languages of the world.

CATALOG NOTES

N/A

Total Lecture Units:3.00

Total Laboratory Units: 0.00

Total Course Units: 3.00

Total Lecture Hours:54.00

Total Laboratory Hours: 0.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 54.00

PRECONDITIONS FOR ENROLLMENT

And/Or	Course	Type	Req. Is Being
	LING - 101 - Introduction To Language And Linguistics	Prerequisite	Added
Or	ENGL - 100 - Writing Workshop	Prerequisite	Added
Or	ESL - 151 - Reading and Composition V	Prerequisite	Added

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	LING	101	Introduction To Language And Linguistics	identify, review, and summarize the major subdisciplines of the study of language and their interrelationships: phonetics, phonology, morphology, syntax, semantics, language acquisition, sociolinguistics, psycholinguistics, and neurolinguistics;	Yes
2	LING	101	Introduction To Language And Linguistics	identify and discuss areas of the human anatomy and their linguistic function, including areas of the vocal tract and brain;	Yes
3	LING	101	Introduction To Language And Linguistics	review and summarize the relationship between phonology (sounds), morphology, semantics (meaning) and the arbitrary nature of language;	Yes
4	LING	101	Introduction To Language And Linguistics	apply principles of linguistic analysis to unfamiliar or novel English and non-English language data presented in instructional supplements, the textbook, and/or researched or collected by the student;	Yes
5	LING	101	Introduction To Language And Linguistics	demonstrate an understanding of individual, social, and historical variation in language, including acquisition, dialects, registers, and speech and language pathologies.	Yes
6	ENGL	100	Writing Workshop	Read, analyze, and evaluate contemporary articles and stories to identify topic, thesis, support, transitions, conclusion, audience, and tone;	Yes

7	ENGL	100	Writing Workshop	read, analyze, and evaluate contemporary articles and stories for the comprehension of difficult content and the identification of main ideas and (topic-based) evidence;	Yes
8	ENGL	100	Writing Workshop	write a summary of a contemporary article or story with correct citation techniques;	Yes
9	ENGL	100	Writing Workshop	write an argumentative essay that has an introduction, body paragraphs, and a conclusion, demonstrating a basic understanding of essay organization;	Yes
10	ENGL	100	Writing Workshop	write an argumentative essay that addresses the topic, is directed by a thesis statement, uses appropriate textual evidence, develops logical interpretations, and concludes with some compelling observations;	Yes
11	ENGL	100	Writing Workshop	write an argumentative essay that integrates the ideas of others (i.e., authors) through paraphrasing, summarizing, and quoting with correct citation techniques;	Yes
12	ENGL	100	Writing Workshop	write an argumentative essay that generates novel ideas (those that add to the conversation rather than repeating the author's ideas) related to the topic and the readings;	Yes
13	ENGL	100	Writing Workshop	write compositions (e.g., summaries and argumentative essays) that are easy to read and follow, though some errors in grammar, mechanics, spelling, or diction may exist;	Yes
14	ENGL	100	Writing Workshop	proofread and edit essays for content, language, citation, and formatting problems.	Yes
15	ESL	151	Reading and Composition V	Read and critically analyze various academic readings;	Yes
16	ESL	151	Reading and Composition V	summarize readings;	Yes
17	ESL	151	Reading and Composition V	organize fully-developed essays in both expository and argumentative modes;	Yes
18	ESL	151	Reading and Composition V	compose a 500 to 550-word essay which: summarizes and cites appropriately a reading passage; includes a clear thesis statement; uses evidence to support the thesis; shows clear organization into an introduction, body, and conclusion;	Yes

19	ESL	151	Reading and Composition V	revise writing to eliminate errors in syntax, and grammatical constructions;	Yes
20	ESL	151	Reading and Composition V	employ basic library research techniques;	Yes
21	ESL	151	Reading and Composition V	compose one research paper (1,000 words) or two short research papers (500-700 words each) with citations.	Yes

EXIT STANDARDS

1. identify, review, and summarize the major sub-disciplines of the study of sociolinguistics and their interrelationships, including dialects, style, class, gender, race, age, bilingualism, pidgins, creoles, social justice, educational planning, and government policies;

2. apply principles of linguistic discourse analysis to prepare and present a group project on societal, geographic, or contact variation of language topic;

3. examine principles of linguistic analysis to gather professionally documented evidence of English or non-English language data in order to prepare a research paper on a societal, geographic, contact variation, or standardization issue of language;

4. demonstrate an understanding of how individual, social, regional, national, and international manifestations of language coincide to produce an overall sociolinguistic view of California, the United States, and the world.

STUDENT LEARNING OUTCOMES

1 define and discuss the major concepts and important terminology found in the sociolinguistic areas related to geography, society, contact, and standardization;
2 execute and arrange original sociolinguistic data collection in order to analyze and present the findings;
3 apply principles of sociolinguistics to an English or non-English data set and discover inherent structures based on social and geographic context.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	A. Geographic Variation • Dialect vs. Language Mutual intelligibility • Sociopolitical factors in language labeling • Speaking vs. writing • America, Europe, World difference • Regional dialects § Isoglosses • Phonological distinctions • Lexical distinctions • Syntactic distinctions • Style • Media and the internet • Formal vs. informal • Taboos and euphemisms	12	0	12

2	B. Societal Variation • *Class* Rhoticity in American English Lexical distinctions and slang Syntactic distinctions Phonological distinctions • *Gender* Pragmatic differences Language innovation Cross-linguistic distinctions Grammatical gender • *Ethnicity* African American Vernacular English (AAVE) Chicano English (ChE) Non-US ethnic dialects • *Age* Lexical differences Language innovation Generational slang Generational usage of digital communication	15	0	15

3	C. Contact Variation • *Bilingualism and Multilingualism* Individuals vs. Community Code switching Psychological development of bilingualism Diglossia in the world Language endangerment • *Lingua Franca* Geography Religion Careers/Fields of study • *Pidgins and Creoles* Development of pidgins and creoles Differences between pidgins and creoles Decreolization	15	0	15

4	D. Standardization Issues • *Social Justice* Feminism and LGBTQ rights Slurs and euphemisms Syntactic and semantic labeling choices • *Educational planning* Bilingual and bi-dialectal education Private vs. public school education Style guides § Official language status • *Governmental policies* Official language planning associations around the world Translation and interpretation implementation Language accessibility for disabled citizens	12	0	12
				54

OUT OF CLASS ASSIGNMENTS

1 a linguistics research paper (e.g. a report consisting of data collection analysis of any US or international topic of geographic, societal, contact variation, or standardization issue);
2 small group class-presented project consisting of original discourse analysis data collection on any US or international topic of geographic, societal, or contact variation.

METHODS OF EVALUATION

1 weekly exercises and / or quizzes;
2 Sectional exams on geographic variation, societal variation, contact variation, and standardization issues;
3 a written final will be given to evaluate student retention of lecture and textbook material as well as a synthesis of course concepts.

METHODS OF INSTRUCTION

- [x] Lecture
- [ ] Laboratory
- [ ] Studio
- [x] Discussion
- [x] Multimedia
- [ ] Tutorial
- [x] Independent Study
- [x] Collaboratory Learning
- [x] Demonstration
- [ ] Field Activities (Trips)
- [ ] Guest Speakers
- [x] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Introduction to Sociolinguistics	Required	Wiley-Blackwell	7		Wardhaugh, Ronald	978 1 118 73229 8	2014
Language in Society: An Introduction to Sociolinguistics	Required	Oxford University Press	2		Romaine, Suzanne	978 0 198 73192 4	2000
An Introduction to Sociolinguistics	Required	Routledge	5		Holmes, Janet	978 1 138 84501 5	2017

COURSE OUTLINE : STV 72
N Non-Credit
COURSE ID

PROPOSAL

COURSE DISCIPLINE : STV

COURSE NUMBER : 72

COURSE TITLE (FULL) : Google Workspace Fundamentals

COURSE TITLE (SHORT) : Google Workspace Fundamentals

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID :

CATALOG DESCRIPTION

STV 72 provides students with an introduction to using and configuring a Google account, security settings, Gmail, Google Calendar, Google Voice, Google Drive, Google Docs, Google Sheets, and Google Forms. Students create a Google account, change account settings, use all features available in Gmail, create calendars and appointments in Google Calendar, create a forwarding telephone number service in Google Voice, and create a channel as well as content in Google's YouTube. (24-32 course hours)

CATALOG NOTES

N/A

Total Lecture Units:0.00

Total Laboratory Units: 0.00

Total Course Units: 0.00

Total Lecture Hours:0.00

Total Laboratory Hours: 32.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 32.00

PRECONDITIONS FOR ENROLLMENT

And/Or	Course	Type	Req. Is Being
	ESL - 30 - ENGLISH AS A SECOND LANGUAGE LEVEL 3	Recommended Preparation	Added
&	STV - 140 - INTERNET	Recommended Preparation	Added

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	Write paragraphs at the low-intermediate level with sufficient unity;	Yes
2	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	develop coherence and mechanical accuracy;	Yes
3	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	demonstrate mastery of grammatical structures studied at a level sufficient to pass unit tests and the divisional grammar mastery test for this level;	Yes
4	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	converse at a functional level adequate for everyday use on the campus and in the community;	Yes
5	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	respond to questions about recorded and live speeches, dialogues, role plays, and lectures;	Yes
6	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	decode 2,500-word reading passages,, respond to inference and recall questions, and utilize a monolingual English dictionary to advantage.	Yes
7	STV	140	INTERNET	access the internet for research and communication;	Yes
8	STV	140	INTERNET	recognize the importance of managing individual privacy and security;	Yes
9	STV	140	INTERNET	explore the world wide web.	Yes

EXIT STANDARDS

1 Demonstrate a basic understanding of Google Accounts and uses;

2 use Gmail to read, search and send email with attachments;
3 use Gmail for email applications such as Outlook;
4 apply use of security options in Google;
5 generate a Google Voice and YouTube account;
6 create and share Google Calendars.

STUDENT LEARNING OUTCOMES

1 Create and secure a Google account for business and personal use;
2 demonstrate skills of searching, creating, and organizing Gmail workspace;
3 develop content using a variety of basic Google applications.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	**Introduction** Introduction to Google Services and Overview Google Suite for business and separate services offered apart from Google Suite for business. Setting up a Google Account • Using the Google Dashboard • Security and setting up 2-factor authentication • Using Google Security to check account status and logins Costs of using Google Services	0	4	4

2	**Gmail** Receiving email with Gmail, and read vs. unread messages Searching for specific emails with advanced search functions such as "label", "from;", "to", using dates, labels, and phrases Sending Gmail • single and multiple recipients; CC and BCC • maximum attachment sizes, multiple attachments, and compressing files for attaching to Gmail Organizing email with custom labels Creating alias email addresses in Gmail Creating individual contacts Creating mailing lists of customers Configuring Gmail to use with Outlook 365	0	8	8
3	**Google Calendar** Creating recurring and non-recurring appointments Creating calendars • grouping and naming calendars Sharing calendars • sharing your own calendar and using permissions • viewing shared calendars Synchronizing phone with app	0	8	8

4	**Google Voice** • Getting a Google Voice number • Forwarding Google Voice to another telephone • Texting and messaging through Google Voice • Creating outgoing messages • Receiving and checking voicemail and using VM transcription service	0	4	4
5	**YouTube** • Searching YouTube • Creating a channel • Uploading and editing a video	0	4	4
6	**Miscellaneous, New and Changing Google Services** • Google Keep • Google Meet • New developments in Google services	0	4	4
				32

OUT OF CLASS ASSIGNMENTS

1 Not applicable

METHODS OF EVALUATION

1 Project based evaluation (need example)
2 Multiple-choice quizzes
3 Comprehensive final test

METHODS OF INSTRUCTION

- [x] Lecture
- [x]
- [ ] Laboratory
- [x] Studio
- [ ] Discussion
- [ ] Multimedia
- [ ] Tutorial
- [ ] Independent Study
- [x] Collaboratory Learning

Demonstration

- [ ] Field Activities (Trips)
- [ ] Guest Speakers
- [ ] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Google Apps Made Easy: Learn to Work in the Cloud	Required	Create Space Independent Publisher	1	Print	James Bernstein	978179811 4995	2019

COURSE OUTLINE : STV 73
N Non-Credit
COURSE ID

PROPOSAL

COURSE DISCIPLINE : STV

COURSE NUMBER : 73

COURSE TITLE (FULL) : Google Workspace Intermediate

COURSE TITLE (SHORT) : Google Workspace Intermediate

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID :

CATALOG DESCRIPTION

STV 73 provides students with skills and information to extend their knowledge of Google Workspace beyond the Google Workspace Fundamentals course. Students create documents and forms in the cloud, backup files, and collaborate with others on documents and worksheets.

CATALOG NOTES

N/A

Total Lecture Units:0.00

Total Laboratory Units: 0.00

Total Course Units: 0.00

Total Lecture Hours:0.00

Total Laboratory Hours: 32.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 32.00

PRECONDITIONS FOR ENROLLMENT

And/Or	Course	Type	Req. Is Being
	STV - 72 - Google Workspace Fundamentals	Recommended Preparation	Added
&	ESL - 30 - ENGLISH AS A SECOND LANGUAGE LEVEL 3	Recommended Preparation	Added
&	STV - 140 - INTERNET	Recommended Preparation	Added

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	STV	72	Google Workspace Fundamentals	Demonstrate a basic understanding of Google Accounts and uses;	Yes
2	STV	72	Google Workspace Fundamentals	use Gmail to read, search and send email with attachments;	Yes
3	STV	72	Google Workspace Fundamentals	use Gmail for email applications such as Outlook;	Yes
4	STV	72	Google Workspace Fundamentals	apply use of security options in Google;	Yes
5	STV	72	Google Workspace Fundamentals	generate a Google Voice andYouTube account;	Yes
6	STV	72	Google Workspace Fundamentals	create and share Google Calendars.	Yes
7	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	Write paragraphs at the low-intermediate level with sufficient unity;	Yes
8	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	develop coherence and mechanical accuracy;	Yes

9	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	demonstrate mastery of grammatical structures studied at a level sufficient to pass unit tests and the divisional grammar mastery test for this level;	Yes
10	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	converse at a functional level adequate for everyday use on the campus and in the community;	Yes
11	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	respond to questions about recorded and live speeches, dialogues, role plays, and lectures;	Yes
12	ESL	30	ENGLISH AS A SECOND LANGUAGE LEVEL 3	decode 2,500-word reading passages,, respond to inference and recall questions, and utilize a monolingual English dictionary to advantage.	Yes
13	STV	140	INTERNET	access the internet for research and communication;	Yes
14	STV	140	INTERNET	recognize the importance of managing individual privacy and security;	Yes
15	STV	140	INTERNET	explore the world wide web.	Yes

EXIT STANDARDS

1. Utilize and configure a Google Account platform for real-world situations;
2. demonstrate how to back up files and folders using Google Drive;
3. utilize Google Docs to create a fully formatted document with tables, headers, footers, and graphics;
4. create tables with values, labels, and formulas as well as create charts based on tables using Google Spreadsheet;
5. create a formatted presentation with Google Slides and publish it to the web;
6. produce a customer survey form and save response data for analysis using Google Forms.

STUDENT LEARNING OUTCOMES

1 Customize various Google platform applications for business and personal use.

2 configure collaboration features with Google docs, slides, sheets, and forms;

3 synchronize between multiple devices when using various Google platform applications.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	**Google Drive** Capacity of basic free Google Drive. Paid options for extra space Using Good Drive as a Document Backup Service Backing up/uploading files Organizing documents and creating folders Previewing documents from Drive and editing directly in Drive Sharing and Permissions in Google Drive • Copying the sharing link and emailing • Receiving and using a shared link • Changing permissions for shared folders and files The Google Drive synchronization app for computers • Choosing folders to synchronize • Synchronizing between multiple computers The Google Drive app for smart phones	0	8	8

2	**Google Docs** Using Google Docs as a word processor and features • Formatting text and paragraphs • Inserting images • Creating tables Sharing and Permissions in Google Docs • Saving and sharing an individual document • Setting read and write permissions for others and simultaneous editing Downloading and printing documents	0	6	6
3	**Google Sheets** • Using Google Sheets as a spreadsheet program and features • Creating simple budgets and worksheets • Sharing permissions in Google Sheets • Collaboration in Google Sheets	0	6	6
4	**Google Slides** • Using Google Slides as a presentation program and features • Creating a basic presentation with text and images • Turning your slide into an interactive web page	0	6	6
5	**Google Forms** • Create Customer Satisfaction forms • Create an on-line test • View results of satisfaction forms and make a report	0	6	6
				32

OUT OF CLASS ASSIGNMENTS

1 Not applicable

METHODS OF EVALUATION

1 Multiple choice quizzes
2 Project based evaluation (example needed here)
3 Comprehensive final test

METHODS OF INSTRUCTION

- [x] Lecture
- [x] Laboratory
- [ ] Studio
- [x] Discussion
- [ ] Multimedia
- [ ] Tutorial
- [ ] Independent Study
- [ ] Collaboratory Learning
- [x] Demonstration
- [ ] Field Activities (Trips)
- [ ] Guest Speakers
- [ ] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Google Apps made easy : learn to work in the cloud	Required	CreateSpace Independent Publisher	1	Print	James Bernstein	1798114992	2019

COURSE OUTLINE : STV 153
N Non-Credit
COURSE ID

PROPOSAL

COURSE DISCIPLINE : STV

COURSE NUMBER : 153

COURSE TITLE (FULL) : Drafting and Basic Design Mirrored Course

COURSE TITLE (SHORT) : Drafting and Basic Design Mirrored Course

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID :

CATALOG DESCRIPTION

STV 153 is a mirrored course for ARCH 101 that offers limited seating through noncredit. It covers the fundamentals of drafting techniques used in architectural drawing, and the basic design procedure relative to good residential planning. The course studies residential building codes, drafting of working drawings, scale drawings of construction details, framing concepts, and proper dimensioning techniques.

CATALOG NOTES

N/A
Total Lecture Units:0.00

Total Laboratory Units: 0.00

Total Course Units: 0.00

Total Lecture Hours:27.00

Total Laboratory Hours: 81.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 108.00

PRECONDITIONS FOR ENROLLMENT

And/Or	Course	Type	Req. Is Being
	ART - 130 - 2-D Foundations	Recommended Preparation	Added
&	ESL - 141 - Grammar and Writing IV	Recommended Preparation	Added
Or	ENGL - 100 - Writing Workshop	Recommended Preparation	Added

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	ART	130	2-D Foundations	demonstrate a working knowledge and understanding of the basic elements of a two - dimensional art, including line, shape, texture, value, color and spatial illusion;	Yes
2	ART	130	2-D Foundations	demonstrate a working knowledge and understanding of the organizing principles of two-dimensional art, including balance, proportion, repetition, contrast, harmony, unity, point of emphasis, and visual movement;	Yes
3	ART	130	2-D Foundations	independently produce visual compositions and problem-solving projects that successfully incorporate the basic elements and organizing principles of two-dimensional art;	Yes
4	ART	130	2-D Foundations	make individual aesthetic decisions and judgments related to their own artwork;	Yes
5	ART	130	2-D Foundations	skillfully use a variety of artistic materials, techniques and tools;	Yes
6	ART	130	2-D Foundations	translate ideas and visual experience into images using both formal and conceptual approaches;	Yes
7	ART	130	2-D Foundations	discuss, critique and evaluate their own twodimensional compositions, as well as those of their classmates;	Yes
8	ART	130	2-D Foundations	discuss and write a critical evaluation of twodimensional art using the appropriate vocabulary and terminology pertaining to the basic elements and organizing principles of two-dimensional art;	Yes
9	ART	130	2-D Foundations	examine, compare and analyze historical and contemporary examples of twodimensional art, within a global context.	Yes

10	ESL	141	Grammar and Writing IV	Compose a 400 to 450-word thesis-based essay which: (a) summarizes and cites appropriately a reading passage provided as a prompt, (b) includes a clear thesis statement, (c) uses evidence to support the thesis, (d) shows clear organization into an introduction,body, and conclusion, and (e) uses appropriate rhetorical modes such ascomparison/contrast, cause/effect, and persuasion in order to support a thesis.	Yes
11	ENGL	100	Writing Workshop	Read, analyze, and evaluate contemporary articles and stories to identify topic, thesis, support, transitions, conclusion, audience, and tone;	Yes
12	ENGL	100	Writing Workshop	read, analyze, and evaluate contemporary articles and stories for the comprehension of difficult content and the identification of main ideas and (topic-based) evidence;	Yes
13	ENGL	100	Writing Workshop	read, analyze, and evaluate student compositions for unity, development, use of evidence, interpretation, coherence, and variety of sentence form;	Yes
14	ENGL	100	Writing Workshop	write a summary of a contemporary article or story with correct citation techniques;	Yes
15	ENGL	100	Writing Workshop	write an argumentative essay that has an introduction, body paragraphs, and a conclusion, demonstrating a basic understanding of essay organization;	Yes
16	ENGL	100	Writing Workshop	write an argumentative essay that addresses the topic, is directed by a thesis statement, uses appropriate textual evidence, develops logical interpretations, and concludes with some compelling observations;	Yes
17	ENGL	100	Writing Workshop	write an argumentative essay that integrates the ideas of others (i.e., authors) through paraphrasing, summarizing, and quoting with correct citation techniques;	Yes

18	ENGL	100	Writing Workshop	write an argumentative essay that generates novel ideas (those that add to the conversation rather than repeating the author's ideas) related to the topic and the readings;	Yes
19	ENGL	100	Writing Workshop	write compositions (e.g., summaries and argumentative essays) that are easy to read and follow, though some errors in grammar, mechanics, spelling, or diction may exist;	No
20	ENGL	100	Writing Workshop	proofread and edit essays for content, language, citation, and formatting problems.	Yes

EXIT STANDARDS

1. Describe the meaning of basic architectural vocabulary terms;
2. demonstrate proficiency in drawing on vellum and in the use of drawing instruments by the completion of various drawing assignments;
3. describe limited examples of the use of the International Building Code as it applies to residential construction.

STUDENT LEARNING OUTCOMES

1 Describe the architectural terminology that are used in a typical architectural project.

2 Describe the tools and techniques necessary to draw a typical view of a residential structure using a Computer Aided Design (CAD) software program.

3 Evaluate a building by using the International Building Code for purposes of ensuring the safety of the building occupants.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Introduction to the Study of Architecture • Function and design of a residential structure • Basic purpose of shelter • Room sizes • Traffic patterns within the home • Building code requirements • Architectural terminology • Styles of architecture • Past/Historic styles • Present trends • Architectural practice • Drafter/designer • Architect • Engineer	4	1	5
2	Architectural Symbols • Material symbols • Interior section symbology • Exterior materials • Electrical and plumbing symbols • Door and window types and symbols	1	4	5
3	Projection Methods • Visualization practice • Orthographic projection • Isometric projection • Discussion of perspective projection	2	5	7
4	Architectural Lettering • Lettering styles and practice • Dimensioning	1	4	5

5	Construction Techniques • Wood framing methods • Concrete foundation • Application of finish materials • Roughing in plumbing and electrical fixtures • Building code requirements	4	6	10

6	Building Materials and Components • Wood, stone, steel, concrete, brick, adobe • Uses • Limitations • Reference manufacturer sources • Sweet's catalog • Other manufacturer's sources • Use of the Internet for research	3	8	11
7	Orientation of the Home • Effects of weather and sunlight • Setback and size limitations • Zoning and economics	1	4	5
8	Architectural Working Drawings • Title sheet • Site plan • Floor plan • Foundation plan • Foundation details • Section views • Electric plan • Framing plan • Exterior elevations	4	34	38
9	Architectural Renderings • Proper use of pencils and other media used in architecture • Sketching and delineation of architectural forms • Landscape forms	1	2	3

10	Use of the AutoCAD Computer Aided Design (CAD) • Software Use of CAD tools used in architectural drafting ◦ Placing lines Adding dimensions ◦ Use of layers ◦ Creating and using blocks ◦ Proper scale for various architectural drawings ◦ Use of hatch patterns ◦ Placing text ◦ Use of the array tool ◦ Printing the drawing	5	9	14
11	Presentation of Final Project • Portfolio of completed drawings • Rendering of display drawings • Purpose of architectural models • Study models • Finished models • Computer models • Final critique	1	4	5
				108

OUT OF CLASS ASSIGNMENTS

1 essay (e.g. write a description of job requirements for a drafter/designer and explain why these are necessary);
2 group projects (e.g. complete a design project such as a kitchen including cabinetry design).

METHODS OF EVALUATION

1 vocabulary quizzes. (e.g. eight quizzes of 10 terms each);
2 midterm examination and performance test. (e.g. timed drawing test of a basic architectural project);
3 final individual project. (e.g. drawings of a two-bedroom project with eight sheets of working drawings);
4 final examination and performance test. (e.g. timed drawing test of a small residential project consisting of a floor plan, elevation and foundation detail).

METHODS OF INSTRUCTION

- [x] Lecture
- [x] Laboratory
- [ ] Studio
- [ ] Discussion
- [x] Multimedia
- [ ] Tutorial
- [ ] Independent Study
- [ ] Collaboratory Learning
- [ ] Demonstration
- [ ] Field Activities (Trips)
- [x] Guest Speakers
- [ ] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
The Professional Practice of Architectural Working Drawings	Required	New York: John Wiley	5	Print	Osama,Wakita	9781118880524	2017