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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: MUSIC 43R
Full Course Title: Symphonic Band
Short Title: Symphonic Band
TOP Code: 1004.00 - Music, General
Effective Term: Fall 2018

Course Standards

Course Type: Credit - Degree Applicable
Units: 1.0
Total class hours: 108.0
 Total contact hours in class: 72.0
 Lecture hours: 18.0
 Lab hours: 54.0
 Hours outside of class: 36.0
Repeatable: Yes (3)
Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Music (Masters Required)
-

Course Description

This course is for the study, rehearsal, and public performance of symphonic band literature, with an emphasis on the development of skills needed to perform within an ensemble. Different literature will be studied each semester. The course is repeatable for credit the maximum times allowable by regulation. Audition required.

Conditions of Enrollment

Audition Required (Students may enroll in the course before the audition, but may be dropped based on the audition result).

Content

Course Lecture Content

1. Rhythm
 - a. Precise reading of rhythm
 - b. Playing together as a section
 - c. Playing together as an ensemble
 - d. Following the conductor as applicable
2. Intonation
 - a. Correct reading and production of pitches
 - b. Tuning pitches and harmonies as a section
 - c. Tuning of pitches and harmonies as an ensemble

3. Articulation
 - a. Correct readings of markings
 - b. Following the conductor's gestures as applicable
 - c. Agreement as a section
 - d. Agreement as an ensemble
4. Expression
 - a. Correct readings of markings
 - b. Following the conductor's gestures as applicable
 - c. Agreement as a section
 - d. Agreement as an ensemble
5. Style and performance practices
 - a. Study and execution of appropriate style for literature from various style periods
 - b. Study and execution of appropriate performance practices for literature from various style periods
6. Solo opportunities
 - a. Perform solo segments with good tone, rhythmic and timing accuracy, expressivity and correct style as opportunity arises
 - b. Learn to improvise as necessary
7. Blend and balance
 - a. Correct tone, volume, and timbre as appropriate to section
 - b. Correct tone, volume, and timbre as appropriate to ensemble
8. Professional standards of conduct
 - a. Demonstrate musical preparedness in rehearsal and performances
 - b. Demonstrate professionalism with regard to attendance, attitude, deportment, and participation

Course Lab/Activity Content

Apply the lecture contents, listed below, to rehearsals and performances as an integral member of the ensemble.

1. Rhythm
 - a. Precise reading of rhythm
 - b. Playing together as a section
 - c. Playing together as an ensemble
 - d. Following the conductor as applicable
2. Intonation
 - a. Correct reading and production of pitches
 - b. Tuning pitches and harmonies as a section
 - c. Tuning of pitches and harmonies as an ensemble
3. Articulation
 - a. Correct readings of markings
 - b. Following the conductor's gestures as applicable
 - c. Agreement as a section
 - d. Agreement as an ensemble
4. Expression
 - a. Correct readings of markings
 - b. Following the conductor's gestures as applicable
 - c. Agreement as a section
 - d. Agreement as an ensemble
5. Style and performance practices
 - a. Study and execution of appropriate style for literature from various style periods
 - b. Study and execution of appropriate performance practices for literature from various style periods
6. Solo opportunities
 - a. Perform solo segments with good tone, rhythmic and timing accuracy, expressivity and correct style as opportunity arises
 - b. Learn to improvise as necessary
7. Blend and balance
 - a. Correct tone, volume, and timbre as appropriate to section
 - b. Correct tone, volume, and timbre as appropriate to ensemble
8. Professional standards of conduct
 - a. Demonstrate musical preparedness in rehearsal and performances
 - b. Demonstrate professionalism with regard to attendance, attitude, deportment, and participation

Objectives

1. Formulate and evaluate an educated and knowledgeable interpretation of proper musical sound and style of composition as it pertains to an individual musician and to the entire band. ****Requires Critical Thinking****
2. Perform using nuance of interpretation and music reading skills while balancing all aspects of instrumental musical sound simultaneously. ****Requires Critical Thinking****
3. Recognize proper technique on student's instrument.
4. Play in time with section and ensemble as directed by the conductor.
5. Play the correct pitches as indicated with accurate intonation.
6. Play with the articulation, dynamics, phrasing, and expression as directed.
7. Demonstrate appropriate blend, balance and sound within the section and the ensemble. ****Requires Critical Thinking****

Student Learning Outcomes

1. Upon completion of this course, students will effectively perform a musical composition as non-verbal communication as an integral part of the ensemble. The performance will be a public performance and demonstrate technical proficiency and musicality.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
2. Upon completion of this course, students will demonstrate self-discipline, time management skills, and skills in the team work of ensemble music making through practices and performances.
 - **Personal and Social Responsibility** Students will interact with others by demonstrating respect for opinions, feelings, and values.

Methods of Instruction

- **Laboratory**
Students will rehearse in sections and with the entire ensemble.
- **Lecture/Discussion**
The instructor will select the music for the semester, provide background information about the selections and their styles, give specific guidelines for improvements, organize performances, and direct the ensemble in rehearsals and performances.
- **Other**
Guided music performances

Assignments

Other Assignments

Practice measures 30-75 to achieve fluency in the following manner.

- Count the beats and figure out the precise rhythm.
- Observe the key signature and figure out the pitches and the appropriate fingering, tonguing, etc.
- Play slowly, keeping the steady beat.
- Observe articulation, dynamic, and other expressive markings.
- Increase speed without sacrificing accuracy or intonation.
- Identify difficult spot and drill.

Methods of Evaluation

- Homework
 - Laboratory Assignments
 - Oral Tests/Class Performance
 - Participation
 - Skills Demonstrations/Performance Exam
-

Course Materials

Other:

1. Music repertoire appropriate to the ensemble. Different works will be selected each semester.
-

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: VETT 2

Full Course Title: Physiology for Veterinary Technicians

Short Title: Vet Physiology

TOP Code: 0102.10 - Veterinary/Animal Health Technology/Technician and Veterinary Assistant*

Effective Term: Spring 2016

Course Standards

Course Type: Credit - Degree Applicable

Units: 3.0

Total class hours: 162.0

Total contact hours in class: 72.0

Lecture hours: 36.0

Activity hours: 36.0

Hours outside of class: 90.0

Repeatable: No

Grading Method: Letter Grade Only

Minimum Qualifications for Instructors

- Veterinary Technology
-

Course Description

Physiology of domestic animals (primarily the dog, cat, horse, and ruminant). Emphasis on the following systems: skeletal, muscular, special senses (e.g., vision, hearing, balance), immune, integumentary, respiratory, cardiovascular, urinary, endocrine, digestive, and reproductive (including physiology of pregnancy and parturition). Also includes physiologic principles of certain pathological problems and surgical conditions.

Conditions of Enrollment

Satisfactory completion of: VETT 4

Advisories

- **Computer Literacy - recommended basic computer skills**
Requires computer testing and literature searches.
 - **Language - recommended eligibility for English 1A**
Course requires writing essays and a final written project.
 - **Mathematics - recommended eligibility for Math 52**
Simple math computations are required.
-

Content

Course Lecture Content

1. Introduction
 - a. Histology
 - b. Embryology
 - c. Physiology
 - d. Anatomy
 - e. Pathology
2. Musculoskeletal System
 - a. Physiology
 - b. Anatomy
3. Integumentary System
 - A. Physiology
 - B. Anatomy
- IV. Respiratory System
 - A. Physiology
 - B. Anatomy
- V. Nervous System
 - A. Physiology
 - B. Anatomy
- VI. Circulatory System
 - A. Physiology
 - B. Anatomy
- VII. Digestive System & Nutrition
 - A. Physiology
 - B. Anatomy
- VIII. Excretory System
 - A. Physiology
 - B. Anatomy
- IX. Reproductive System
 - A. Physiology
 - B. Anatomy
- X. Endocrine System
 - A. Physiology
 - B. Anatomy

Course Lab/Activity Content

Lab/activity will include practices like the following:

1. Obtain temperature, pulse and respiration rates on dogs, cats, horses, and cows
2. Operate monitoring equipment for oxygenation and respiration

3. Identify normal and abnormal heart rhythms using an electrocardiogram
 4. Practice venipuncture on dogs, cats, horses, and cows
-

Objectives

1. Judge normal location and appearance of internal organs, vessels and nerves of domestic animals and relate the knowledge to techniques used in diagnostic and medical procedures. ****Requires Critical Thinking****
 2. Demonstrate use of reputable resources when discussing and designing components of a disease process. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, students will be able to analyze and evaluate the normal physiologic body systems of the common animal species.
 2. Upon completion of this course, students will be able to construct a written, evidence-based argument concerning a specific pathophysiologic process.
 3. Upon completion of this course, students will be able to correctly describe the mammalian circulatory system to include the route and structures involved in the passage of blood throughout the body.
-

Methods of Instruction

- **Lecture/Discussion**

The two hours of lecture focus on content that may be difficult to grasp from reading alone. Content is "chunked," and after 1-2 sections, student knowledge is assessed using an informal, ungraded method (e.g., using Scratchers, Quizlet, or Kahoot!). Once everyone's questions have been answered, we stop lecture and students are introduced to and practice a hands-on skill mapped to that day's lesson (see "Studio/Activity" below).

- **Studio/Activity**

As described above, each day's lesson has hands-on activities mapped to it. For example, a lesson about the cardiovascular system would include such hands-on skills as how to recognize a heart murmur, hook up an electrocardiogram (ECG), or obtain a blood sample from the jugular vein.

Assignments

Reading Assignments

The following is an excerpt from Chapter 16 of the required textbook:

"Feline odontoclastic resorptive lesions were first discovered in the necks of teeth, which explains why these lesions were initially known as "neck lesions." Other species can also acquire similar lesions, so the name has been changed from feline odontoclastic resorptive lesion to tooth resorption. In this condition, tooth resorption occurs to form erosions, which are then covered with calculus or gingival tissue. Some affected animals will show signs of pain and discomfort, resulting in changes in behavior or appetite, whereas others show few symptoms. The level of treatment ranges from monitoring with minimal treatment to multiple tooth extractions."

Writing Assignments

Below are the instructions for the semester research project:

Last semester, you read a case study. Now create your own.

What is a case study?

Clinical case studies are one way that knowledge can be shared among members of a medical profession. As veterinary technicians, you will be involved in cases that are different or unusual or simply new to you, and your experience with the case can prove invaluable to other veterinary technicians, assistants, and veterinarians. A case study is expected to discuss the history, physical exam, treatment plan, and conclusions drawn from the case.

For example, pictured here are presenters at the 2016 North American Veterinary Community (NAVC) Conference. NAVTA hosts a Case Study competition each year. A variety of cases were presented before an audience, and one was selected as the winner.



How do you choose a case?

Preferably, a case could be chosen from your place of work or where you are (or previously were) interning. The cases do not have to be unusual. They should be interesting to you, and they should be sufficiently complicated to call on your training in physiology, clinical lab techniques, medical terminology, and pharmacology.

You may also invent your own case, based on a patient you have read about or seen in a video. You will have to create the details then. I provide guidance on this below.

Your patient can be any type of animal. Your patient may even be a population of animals: for example, you could write about a *Salmonella* outbreak among horses at a boarding facility, or a *Leptospirosis* outbreak in a group of sea lions. The entire group of horses or sea lions could be considered the patient.


Important: For confidentiality, please change names of patient and owner in your case. Alternatively, you can obtain verbal permission from the owner to use their case.

What would be considered a case study that meets expectations or standards (i.e., a "B" paper), or that exceeds expectations or standards (i.e., an "A" paper)?

The case studies you read in the NAVTA journals would all exceed expectations.

In addition, read examples of [a case study that exceeds expectations](#) and [a case study that meets expectations](#) in the Future of Veterinary Medicine module.

Instructions

- Length: Approximately 1,500 -2,000 words, not including the title or reference pages.
- Due: May 14, 11:59 pm, Pacific Standard Time (PST)
- References: You are to have a minimum of four references.
 - See below for how to format references. You will use American Psychological Association (APA) format.
 - You will probably need more than four, but four is the minimum.
 - References can all be secondary references, such as textbooks from other veterinary technology classes. Recommended textbooks are as follows:
 - *Laboratory Procedures for Veterinary Technicians* by Sirois.
 - This was your VETT 4 textbook.
 - *Clinical Anatomy and Physiology for Veterinary Technicians* by Colville and Bassert.
 - *Clinical Pharmacology and Therapeutics for Veterinary Technicians* by Bill.
 - *Veterinary Medical Terminology* by Romich
 - This was your VETT 55 textbook.
 - *McCurnin's Clinical Textbook for Veterinary Technicians* by Bassert.
 - The [Merck Veterinary Journal \(Online\)](#).
 - You are encouraged also to use primary sources. By primary source, I mean original research or reviews or articles from peer-reviewed journals.
 - What does "peer-reviewed" mean? Essentially, peer-reviewed is an academic term for quality control.
 - It means that a board of scholarly reviewers in the subject area of the journal, *review* materials they publish for quality before articles are accepted for publication.
 - See [Journals and Databases](#) for examples of peer-reviewed journals and of searchable databases.
 - In many cases, you will find only a summary of the research. This is called the abstract. While not as good as the entire paper, the abstract is still a useful primary source.
- The paper will be worth 100 points.
- Please review [how to avoid plagiarism](#) . Evidence of plagiarism results in a score of zero, and disciplinary action.

Here is a recommended format to follow in your case study. You may use a different format if you wish but it should contain the information below.

(A format is then provided.)

Methods of Evaluation

- **Exams**
- **Problem Solving Exercises**
- **Quizzes**

- Research Project
 - Skills Demonstrations/Performance Exam
-

Course Materials

Textbooks:

1. Colville, TP. *Clinical Anatomy and Physiology for Veterinary Technicians*, 3rd ed. Wiley-Blackwell, 2015, ISBN: 978-0323227933
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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 20

Full Course Title: African, Oceanic, and Native American Art History Survey

Short Title: Non Western Art

TOP Code: 1001.00 - Visual and Performing Arts, General

Effective Term: Spring 2017

Course Standards

Course Type: Credit - Degree Applicable

Units: 3.0

Total class hours: 162.0

Total contact hours in class: 54.0

Lecture hours: 54.0

Hours outside of class: 108.0

Repeatable: No

Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Art (Masters Required)
-

Course Description

This course is a survey of visual culture within select regions in Africa, Oceania, and indigenous Americas.

Content

Course Lecture Content

1. Introduction to the discipline of Art History
 - a. Aesthetics
 - b. Connoisseurship
 2. Africa: from prehistoric to present
 - a. Rock art
 - b. Sub Sahara
 - c. West Africa
 - d. East Africa
 - e. South Africa
 3. Indigenous North America: from prehistoric to present
 - a. North America
 4. Oceania: from prehistoric to present
 - a. Melanesia
 - b. Micronesia
 - c. Polynesia
 - d. Australia
-

Objectives

1. Identify, examine, and assess representative works of art and architecture from the art historical periods covered in this course employing appropriate art historical terminology. ****Requires Critical Thinking****
 2. Analyze, discuss, and differentiate works of art and architecture in terms of historical context and cultural values. ****Requires Critical Thinking****
 3. Analyze, discuss, and distinguish the roles of art, architecture, and the artist from the art historical periods covered in this course. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, students will be able to recognize the distinct visual language and iconography of art from various cultures in Africa, Oceania, and Indigenous North America.
 2. Upon completion of this course, students will be able to understand how Non Western art is related to geographic resources, social organization, and the belief systems of the cultures examined.
 3. Upon completion of this course, students will be able to demonstrate an understanding of the social function of Non-Western art through a personal project based on research.
-

Methods of Instruction

- Lecture/Discussion
-

Assignments

Reading Assignments

Writing Assignments

Other Assignments

1. Read handout titled "Aspects of African Culture: *Masquerades*" in preparation to discuss the function of masks and performance in African culture
 2. Write an essay comparing the iconography of temple sculptures of the Kings of Dahomey with the murals from the Tepantitla at Teotihuacan.
-

Methods of Evaluation

- Essay/Paper
- Exams
- Homework
- Participation
- Problem Solving Exercises
- Quizzes
- Research Project
- Other

Per C-ID, course evaluation WILL include: Methods of evaluation will include: 1. Written essays, assignments, and/or research projects 2. Essay exams Methods of evaluation may also include: 3. Classroom discussions 4. Objective exams 5. Projects and presentations

Course Materials

Textbooks:

1. Kampen-O'riley, Michael. *Art Beyond the West*, 3rd ed. Pearson, 2012, ISBN: B00E6TPB96
Equivalent text is acceptable

Other:

1. Online museum sites and videos

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 21
Full Course Title: Asian Art History
Short Title: Asian Art History
TOP Code: 1002.00 - Art/Art Studies, General
Effective Term: Spring 2017

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 54.0
 Lecture hours: 54.0
 Hours outside of class: 108.0
Repeatable: No
Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Art (Masters Required)
-

Course Description

This course is a survey of the arts of China, India, Japan, Indonesia, Korea, and South East Asia from prehistoric times to the present. This course examines the wide variety of art forms from these areas and time periods within their historical contexts, with emphasis on function, meaning, aesthetic concepts, mechanical aspects of art making, and the classification and criticism of these arts.

Conditions of Enrollment

Advisories

- Language - recommended eligibility for English 1A
-

Content

Course Lecture Content

1. Introduction to the Discipline of Art History and Connoisseurship.
 - a. The following units are concerned with the reading and interpretation of the visual language of art and architecture in each region, and the understanding of the religious, social, and political meaning, and functions of these works.

2. India

- a. Indus Valley
- b. Shaishunaga-Nanda
- c. Maurya Shunga
- d. Andhra
- e. Kushan
- f. Gupta
- g. Medieval
- h. Sultanate
- i. Vijayanager
- j. Madura periods
- k. Mughal Dynasty
- l. 20th Century

3. Southeast Asia

- a. Pre-Angkor
- b. Fa Nan
- c. Chen La
- d. Koulen
- e. Angkor
- f. Thai periods Ban Chieng
- g. Dvaravati
- h. Sukhothai
- i. Ayudhya Periods

4. Indonesia

- a. Period of Chinese influence
- b. Shirvijaya and Shailendra Kingdoms
- c. East Javanese Period
- d. Majapahit
- e. Wayang
- f. Islamic Styles

5. China

- a. Pre-Shang
- b. Shang
- c. Anyang
- d. Zhou
- e. Qui
- f. Han
- g. Age of Disunion
- h. Sui
- i. Tang
- j. Five Dynasties
- k. Sung
- l. Yuan
- m. Ming
- n. Qing Periods
- o. 20th Century

6. Korea

- a. Naknang
- b. Three Kingdoms
- c. Unified Silla
- d. Koryo
- e. Choson & Yi Periods
- f. 20th Century

7. Japan

- a. Naknang
- b. Asuka
- c. Nara
- d. Heian
- e. Fujiwara
- f. Kamakura

- g. Nambokocho
 - h. Muromachi
 - i. Momoyama & Edo Periods
 - j. Late 19th & 20th Centuries
-

Objectives

1. Recognize the art of particular cultures and time periods. ****Requires Critical Thinking****
 2. Describe the visual language of a work of art in Art Historical terms. ****Requires Critical Thinking****
 3. Explain the methodology of Art History. ****Requires Critical Thinking****
 4. Interpret art based on the reading of visual language, and the research and analysis of the context in which it was created. ****Requires Critical Thinking****
 5. Demonstrate the ability to form an argument for function and meaning of a researched artwork. ****Requires Critical Thinking****
 6. Assess the impact of the art on the West and Western contact on artwork. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, students will be able to describe the visual language of an Asian artifact in art historical terms.
 2. Upon completion of this course, students will be able to articulate an understanding of sculptural and architectural development from prehistoric period to the present in China, India, Japan, Indonesia, Korea, and Southeast Asia.
 3. Upon completion of this course, students will be able to recognize and differentiate between the art of particular cultures and time periods from China, India, Japan, Indonesia, Korea, and Southeast Asia.
-

Methods of Instruction

- Lecture/Discussion
-

Assignments

Reading Assignments

Read sections in Lecture Notes entitled "Borobudur, Java" and "Angkor Wat, Cambodia" and prepare for a discussion on differences in Buddhist and Hindu temple architecture.

Writing Assignments

Compare and contrast cosmographic references in the *T Shaped Funerary Banner* of Lady Xin from the Han Dynasty of China and the thangka of *Manjushri* from central Tibet.

Other Assignments

Based on your understanding of Buddhist iconography studied in this class, give a full interpretation of this art work (*Seated Buddha preaching first sermon*, from Sarnath, India,

Gupta, c. 465-85. Tan sandstone, 5' 3" high).

Methods of Evaluation

- Essay/Paper
- Exams
- Homework
- Participation
- Problem Solving Exercises
- Quizzes
- Research Project
- Other

Per CID Methods of evaluation will be: 1. Written essays and essay exams will be given. 2. Research Projects 3. Classroom discussions 4. Objective exams 5. Projects and presentations 6. Quizzes 7, Classroom writing assignments 8. Written essays, assignments, and/or research projects. 2. Written essay exams on slides, comparing and contrasting styles. 3. Participation in class with discussions in which stylistic differences are analyzed. Multiple criteria corresponding to multiple assessment methods: 1. The student's written comparisons demonstrate a clear understanding of stylistic differences. 2. The student is able to discuss stylistic differences in a coherent manner, using example of buildings and sculpture studied in class.

Course Materials

Textbooks:

1. O'Riley, Michael Kampen. *Art Beyond the West*, latest ed. Pearson Prentice Hall, 2020, ISBN: 13: 978-0205887
2. Rebecca M. Brown. *Asian Art*, 2nd ed. Wiley, 2006, ISBN: 9781405122412

Equivalent text is acceptable

Other:

1. Notes with images, published on Canvas
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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 36A
Full Course Title: Digital Photography
Short Title: Digital Photography
TOP Code: 1012.00 - Commercial Photography*
Effective Term: Spring 2018

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 90.0
 Lecture hours: 36.0
 Lab hours: 54.0
 Hours outside of class: 72.0
Repeatable: No
Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Art (Masters Required)
-

Course Description

Introduction to digital photography: exposure control, file formats, archiving, and basic image editing/manipulation using Adobe Photoshop.

Conditions of Enrollment

Satisfactory completion of: ART 31

Advisories

- **Computer Literacy - recommended basic computer skills**
-

Content

Course Lecture Content

1. Introduction to Various Digital Input Methods:
 - a. Cameras - film vs. CCD
 - b. Scanners - film/flatbed
 - c. Video
 - d. Pros/Cons
2. Introduction to Mac Operating System
 - a. File Management

- b. Navigation
- 3. Exposure and Tonal Control
 - a. In-camera histograms
 - b. Characteristic curves
 - c. Superbrackets
- 4. File Sizes, Formats and Archiving
 - a. RAW, TIFF, JPEG and others
 - b. Safe archiving/storage methods and filing
- 5. Intro to Scanning
 - a. 2D vs. 3D/transmissive vs. reflective originals
- 6. Basic Editing and Manipulation
 - a. Color and contrast correction
 - b. Retouching
 - c. Cropping/sizing for output
- 7. Output Alternatives
 - a. Printers
 - b. Thumb Drive
 - c. Web
- 8. Legal and Ethical Considerations
 - a. Preserving and respecting copyright in the public domain

Course Lab/Activity Content

- 1. Lab content follows practice and critique of lecture material.
- 2. Introduction to Various Digital Input Methods:
 - a. Cameras - film vs. CCD
 - b. Scanners - film/flatbed
 - c. Video
 - d. Pros/Cons
- 3. Introduction to Mac Operating System
 - a. File Management
 - b. Navigation
- 4. Exposure and Tonal Control
 - a. In-camera histograms
 - b. Characteristic curves
 - c. Superbrackets
- 5. File Sizes, Formats and Archiving
 - a. RAW, TIFF, JPEG and others
 - b. Safe archiving/storage methods and filing
- 6. Intro to Scanning
 - a. 2D vs. 3D/transmissive vs. reflective originals
- 7. Basic Editing and Manipulation
 - a. Color and contrast correction
 - b. Retouching
 - c. Cropping/sizing for output
- 8. Output Alternatives
 - a. Printers
 - b. Thumb Drive
 - c. Web

Objectives

- 1. Produce high quality digital files via digital cameras, scanned film or existing originals.
- 2. Evaluate correct file size as related to various output requirements - print, web, etc.
- 3. Identify various file formats and correct archiving methods.
- 4. Apply basic image corrections via proprietary editing software. ****Requires Critical Thinking****

5. Evaluate and analyze the effectiveness of various input devices related to intended uses. ****Requires Critical Thinking****
 6. Relate file format and file sizes to variations in quality. ****Requires Critical Thinking****
 7. Identify shortcomings of image quality relative to their cause. ****Requires Critical Thinking****
 8. Apply various image editing tools to alter images or rectify problems. ****Requires Critical Thinking****
 9. Produce a portfolio that reflects an understanding of the digital process. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, students will be able to produce high quality digital files via digital cameras, scanned film or existing originals.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 2. Upon completion of this course, students will be able to apply basic image corrections via proprietary editing software.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 3. Upon completion of this course, students will be able to produce a portfolio that reflects an understanding of the digital process.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
-

Methods of Instruction

- **Laboratory**
 - **Lecture/Discussion**
 - **Other**
Demonstrations of digital workflow
-

Assignments

Reading Assignments

Read below article and post on class blog a one to five paragraph response to the article. Bring reading into class prepared to discuss contents of article.

The Thing Itself

The fundamental principle of photography _____ Bill Jay

For more than 30 years I have been deeply involved with the medium of photography; for most of that time I have directed my lectures and writings at young(er) photographers.

Hopefully my own attitudes to the medium will continue to evolve; certainly, they have undergone continuous change. In looking back at the last three decades, however, I have been aware that one fundamental attitude has remained at the core of all my experiences in the medium. It is this "frame of reference" which I would like to share with you in a single article.

I am not claiming that this principle of photography is radical, different or new. On the contrary. I believe that it is familiar and basic - which means that it deserves and demands constant repetition, in an age when principles are often impugned, as if they no longer held relevance.

But like all fixed Rules, it must also be accompanied by flexible strategies, accounting for individual images of insight and brilliance which, seemingly, ignore the principle we will discuss. But it is there, and no less crucial for being hidden, like the foundations of a building.

Perhaps the most obvious, and therefore the most contentious, issue of photography is the medium's inseparable relationship to The Thing Itself. Photography performs one function supremely well: it shows what something or somebody looked like, under a particular set of conditions at a particular moment in time. This specificity has been, and remains, photography's boon as well as its bane.

It was not by chance that photography was born in the early 19 century when a deterministic spirit was fueling the Victorian's fanaticism for facts. The camera,

along with the microscope and the telescope, became one of the primary

instruments for investigating the details of reality. Deeply and strongly rooted in subject matter, the medium has had an uneasy and tenuous alliance with authorship since its introduction. Therefore, what a photograph depicts has generally taken precedence over what a photograph means.

The advantage inherent in this notion is that photography has become an increasingly useful tool in our society for the transmission of information about every conceivable aspect of life.

The "disadvantage," is that while a photograph is directing attention to its subject, it is de-emphasizing the role of the individual who made it. Indeed, in the vast majority of photographs, even those of extraordinary impact in our lives, we have no knowledge of, or interest in, the author. Attempting to make individualized (artistic) photographs in this environment is a bit like discussing metaphysics at a football stadium during the Super Bowl. This does not mean that the attempt is without value; it may indeed influence your neighbor. But it does mean that the chances of being recognized by the public at large is less than likely.

The act of photography is a similarly private act, unlikely to be rewarded or even noticed by society in general. The young photographer must come to terms with this fact. A photographer with artistic aspirations has a very small audience - one which is increasingly congregating within the faculty at colleges and universities. These institutions have replaced the church and the princes as the major patrons of the arts in our society. Indeed, about the only way it is possible to earn a healthy living from being a photographic artist is to become an academic. And this is the primary value in attending graduate school - to earn the qualifications necessary to become employed as a college teacher/art photographer. In this role, the artist has the freedom to expand his/her creative potential.

I have mentioned the arts in academia in order to throw an oblique light onto a previous assertion. It is this: most of the Great Names used in academia, for the inspiration and edification of students, would not be eligible for graduate studies, let alone as faculty members. Most of them were professional photographers, earning their livings on assignment in journalism, industry, fashion, medicine, and a host of other photographic applications. My point is that great (even artistic) photography is not a function of environment or a prerogative of academia.

A corollary of this point is that you cannot be a photographer by aspiring to be one, or by learning everything there is to be known about photography.

Photographers produce photographs. And many of them. Like every other skill, photography is learned by continuous and dedicated practice.

One well known photographer came to stay at my home and shocked the local photo-dealer by ordering 1,000 cassettes of 35mm film. I assure you that every frame had been exposed within one year. That equals an average 100 frames per day, seven days a week. Another photographer friend shoots a roll of film every day "even when not photographing" because, he says, "it is essential to keep the eye in training." It is true that these two examples are of particular types of photographers but nonetheless the principle remains: you do not become good at anything unless you do it earnestly, regularly and, yes, professionally.

The truth inexorably leads to a single, but usually ignored, matter of fact: in order to photograph with any degree of continuous passion, you must have a fascination for the subject, otherwise you cannot sustain an interest in the act of creation for a long enough period of time in which to make any insightful or original statement about it. In spite of its seemingly heretical slant (in this day and age) what you photograph is usually more important than how you photograph it.

The photographer is, first and foremost, a selector of subjects. The photographer makes a conscious choice from the myriad of possible subjects in the world and states: I find this interesting, significant, beautiful or of value. The photographer walks through life pointing at people and objects; the aimed camera shouts "look at that!" The photographer produces pictures in order that his or her interest in a subject can be communicated to others. Each time a viewer looks at a print, the photographer is saying "I found this subject to be more interesting or significant than thousands of other objects I could have captured; I want you to appreciate it too."

This immediate emotional or intellectual response to the subject matter is at the core of photography. Its periphery is the photographer's manipulation of framing, focus, exposure, lighting, and all the other variables, in order that a bland record is invested with depth through the production of an intriguing image.

I have stressed the importance of subject matter because it is the fundamental principle of photography - and, paradoxically, the least discussed area of the medium, especially to young photographers. I can understand this reluctance. We all have grandiose aspirations for, and expectations from, photography and

this leads to a plethora of concepts, as well as aesthetic and critical theories which, when heaped on the back of photography, bring the medium to its knees, not in homage but in defeat. The fact of the matter is that photography cannot bear the intellectual weight with which it is fashionable to burden it. Photography is not an intellectual game but an emotional response to charged living.

After a critical essay of mine appeared in print, Ralph Steiner would often write me a funny, provocative and stimulating letter. But he would end with the words: "but you still have not told me in which direction to point the camera - and this is what matters." And he is right.

However, giving specific advice on what to photograph would not be appreciated even if it was possible. The answer is provided by a question: What are you really interested in? In other words: What is it that can sustain your enthusiasm for a long time? I advise young photographers to be overly pragmatic in answering such questions. First, list all those subjects which fascinate you - without regard to photography, i. e. what would you be doing if there was no such thing as a camera. After the list is made, you then start cutting it down. Eliminate those subjects which are not particularly visual. For example, existential philosophy can be deleted. Then cut out those subjects which are impractical, for one reason or another. For example, I have always been fascinated by Patagonia but, as I live in Arizona, it is not a subject which I can shoot at available hours and weekends. The subject must not only be practical but also accessible. Also eliminate those subjects about which you are ignorant, at least until you have conducted a good deal of research into the issue. For example, you are not making any statement about urban poverty by wandering back streets and grabbing shots of derelicts in doorways. That's exploitation not exploration.

Continue similar reductions in your list of interests until two or three subjects remains, all of which a.) fire your enthusiasm b.) lend themselves to images, as opposed to words c.) are continuously accessible.

Let me give you an example. As a teacher I encounter a great number of photographic students who are active in college life, naturally emotional about many aspects of education, and who spend the greater part of their waking life on campus. But in the past 15 years, and over 1,000 students later, I have never seen a photographic project based on what it is like to be a college student. In fact, it is rare indeed to see a photographic student carrying

a camera.

Instead, they select subjects which they assume their professors (or the art community at large) expect from a photographer and wonder why they cannot sustain any interest in making pictures. Photography has become a grade- producing chore and the thrill of visually confronting the world has lost its sharp edge of discovery, the original reason, perhaps, why the student became a photographer.

But back to the list. . . with some hesitancy, I admit, I would recommend one further elimination process. It is this. When you have two or three visually possible and accessible subjects, all of which interest you equally, it is no compromise to select the subject which others are more interested in viewing. The state of being human dictates that some things are visually more interesting than others.

As a lecturer, I am well aware that, it is difficult to transmit information to a disinterested, bored audience. You must engage and hold the audience's attention before the content can flow. It is the same with images. Just be aware that some subjects are more accessible and interesting to the lay person than others - and it is deliberately perverse to ignore this consideration. There is a very fine line between pandering to popular appeal and a respectful consideration of viewers'

interests, and only the integrity of the photographer will hold the balance.

All this talk about emphasizing subject matter might indicate that I am only advocating a strict, straight recording of objects. But this is not so. I have been talking about starting points. I do believe that the narrower and more clearly defined the subject matter, the more scope there is for a continuing evolution of complexity and, hence, the greater the latitude for personal interpretation. An analogy might help to explain my point.

I have recently relandscaped my front yard and now need to plant trees. I could have an "instant" tree by collecting an assortment of trunks, branches, twigs and leaves and assembling the parts. But the tree would be dead. The starting point for a living, growing tree is a seed or a sapling. Then by careful nurturing, and a good deal of patience, a tree will grow - often into a form which could not have been foreseen.

It is the same with a body of work, of any merit, in photography. The greatest scope for deep-rooted, organic growth begins with the most simple premise.

The alternative is a frantic grasping for instant gratification which merely leads to works displaying visual pyrotechnics but of dubious depth and resonance. This is the fallacy of form. Young photographers are often pressured into an emphasis on individual style, a search for distinction, a quest for newness and differentness. Yet the truth of the matter is that a unique style is a byproduct of visual exploration, not its goal. Personal vision only comes from not aiming for it. In dim light, objects emerge from the gloom when not looking at them. It is the same with style; paradoxically, it is a natural, inevitable result of emphasizing subject, not self.

And this principle brings up an equally important correlation between subject and self. If it is perceived to be important that the self should be ultimately revealed, the question arises: What is the nature of this "self"? If the self is shallow, narrow and inconsequential, so will be the resultant photographs. It seems an extraordinary presumption that every photographer has a depth of character which demands revelation!

Inevitably, most photographers would do the world a favor by diminishing, not augmenting, the role of self and, as much as possible, emphasizing subject alone. This is not meant to be facetious. Such photographers would be members of an august group - the majority of photographers throughout the medium's history, most of whom remain unknown as personalities. However, the emphasis today is on a cult of personality and individualism, and I presume that the majority of young photographers who encounter these words are anxious to assert self. Like all noble aims, however, it is not achieved without varying degrees of responsibility and hard work. The young photographer must develop a photographic conscience.

What I mean by this term is this: If the subject of the photograph is the vehicle for profounder issues, then it is the photographer's responsibility to think and feel more deeply about those issues. That sounds self-evident. But how is it achieved? By a seriousness of spirit. And how is that achieved? By engaging on a quest for self-knowledge which invests the act of living with greater energy and commitment. I am well aware that this sounds very nebulous. You cannot wake up one morning and assert: today I will be aware and more alive. It starts like self-expression, with a concentration of focus - on the subject matter. It presumes that the subject deserves not only looking, but also thinking, reading, writing, talking as well as photographing - earnestly and energetically.

I once watched a television interview with a great violinist. The interviewer asked him to describe a typical day. The musician said he read scores over breakfast, then composed music in the morning, thought about music during a walk, practiced the violin in the afternoon, played in a concert in the evening, met with musician friends to play together, then went to bed dreaming of the violin. The interviewer was aghast - it seemed such a narrow life. "Yes," said the violinist, "Initially my life was becoming narrower and narrower in focus. But then something extraordinary happened. It is as though my music passed through the tiny hole in an hour glass and it has since become broader and broader. Now my music is making connections with every aspect of life."

In this sense photographers are photographers one hundred per cent of the time, even when washing dishes. The ultimate aim is an oscillation between self and subject with the image being a physical manifestation of this supercharged interface between the spirit and the world.

It demands reiteration: this conscience of the photographer is not learned, not appropriated, not discovered, not acquired quickly or without effort. It is a function of the photographer's life. And it begins with an intense examination of The Thing Itself.

If this presumes too much, I make no apologies. The young photographer, unwilling to develop such a conscience, can always move on to some other activity, without failure or shame, or join the army of hobbyists who derive great pleasure from their images, or employ the medium in its honorable role of documentation without artistic presumption. My concern is with those who engage in artistic posturing and shallow assumptions, using photography as if it was a clever trick and employing stylistic devices in a sleight of hand which deceives the eye.

An earnest and honest appreciation of subject matter is the genesis of a clearer, deeper vision. Photography is rooted in The Thing Itself.

This article has been reproduced more often than any other piece I have written. I think it was first published in Newsletter, Daytona Beach Community College, in 1988 - but it is still being used by and copied for college students at the time of posting, 2006.

Writing Assignments Other Assignments

Methods of Evaluation

- Essay/Paper
 - Homework
 - Laboratory Assignments
 - Participation
 - Portfolio
 - Problem Solving Exercises
 - Skills Demonstrations/Performance Exam
 - Other
- Critique of final portfolio
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Course Materials

Manuals:

1. Murai. *Digital Workflow*, Instructor, 2012,

Other:

1. Access DSLR Camera
2. Assigned reading as required

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 41B
Full Course Title: Individual Problems in Painting: Advanced
Short Title: Ind Prob Paint Adv
TOP Code: 1002.10 - Drawing
Effective Term: Spring 2014

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 108.0
 Lecture hours: 27.0
 Lab hours: 81.0
 Hours outside of class: 54.0
Repeatable: No
Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Art (Masters Required)
-

Course Description

Advanced painting course in which students work on self-directed painting and the development of creative portfolios.

Conditions of Enrollment

Satisfactory completion of: ART 41A; ART 9A; ART 9B

Advisories

- **Language - recommended eligibility for English 1A**
-

Content

Course Lecture Content

1. Individual and self-directed practice expected.
2. Advanced exploration of individual style and subject matter.
3. Concentration on expressive nature of painting.
4. Focus on a body of work in a "series" of new original paintings with a coherent theme.

5. Development of a portfolio of work.
6. Organize group exhibit during semester of attendance.

Course Lab/Activity Content

Students will complete a minimum of five works, observing personal ideas, practice, style and content, in consultation with instructor.

Objectives

1. Demonstrate consistent effort in self-directed and individual production of painted works. ****Requires Critical Thinking****
 2. Relate technical skills to aesthetic aims in painting. ****Requires Critical Thinking****
 3. Evaluate individual painting as a body of work and coherent series of work. ****Requires Critical Thinking****
 4. Develop a portfolio of work. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, the student should be able to write an artist statement observing unique and personal painting methodology.
 2. Upon completion of this course, the student should be able to produce a final portfolio of work in painting.
 3. Upon completion of this course, the student should be able to use language, terminology, and concepts observed in painting for critique of in class works.
-

Methods of Instruction

- Laboratory
 - Lecture/Discussion
-

Assignments

Reading Assignments

Writing Assignments

Other Assignments

Notebooks for drawings, to compose paintings, and class discussion.

Methods of Evaluation

- Essay/Paper
 - Laboratory Assignments
 - Oral Tests/Class Performance
 - Participation
 - Portfolio
 - Problem Solving Exercises
 - Skills Demonstrations/Performance Exam
-

Course Materials

Textbooks:

1. Harrison, Hazel. *Acrylic School*, 1 ed. Reader's Digest, 1997, ISBN: 0-89577-929-3

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 43B
Full Course Title: Individual Problems in Printmaking: Advanced
Short Title: Ind Prob Print Adv
TOP Code: 1002.00 - Art/Art Studies, General
Effective Term: Fall 2014

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 108.0
 Lecture hours: 27.0
 Lab hours: 81.0
 Hours outside of class: 54.0
Repeatable: No
Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Art (Masters Required)
-

Course Description

Exploration into advanced level printmaking techniques and exhibition of work. Students will focus on "working in series" in a single technique, produce an exhibit of work, and write an artist statement.

Conditions of Enrollment

Satisfactory completion of: ART 43A

Content

Course Lecture Content

1. Planning and Producing a Series of Images
 - a. Identifying a subject
 - b. Identifying appropriate printmaking technique
 - c. Producing a unified portfolio of prints
2. History of Printmaking
 - a. Subject selection
 - b. Research
 - c. Presentation
3. Arranging, Preparing, and Installing Exhibitions
 - a. Selecting venue

- b. Organizing exhibit
 - c. Preparing materials
 - d. Installing show
-

Objectives

1. Present a series of prints, using one of the printmaking techniques addressed in Art 15A and 15B, but different from the technique used as the primary method in Art 43A. The student will use a new set of original drawings or photographs as a basis for the prints.
 2. Research and prepare a presentation regarding an historical printmaker, either from the Asian tradition or from the European tradition of edition printmaking and deliver this material to a group other than the current printmaking class—e.g., another studio class, an art appreciation class, a K-12 classroom, or a community group. ****Requires Critical Thinking****
 3. Arrange a small solo show of his/her own prints, either on or off campus, but not including the regular end-of-term student show. ****Requires Critical Thinking****
 4. Participate in all of the combined 15A, 15B and 43A/B critiques. ****Requires Critical Thinking****
 5. Produce an edition of prints to be shared with other class members as part of the class portfolio.
-

Student Learning Outcomes

1. Upon completion of this course, the student should be able to write an artist statement observing personal approaches to printmaking.
 2. Upon completion of this course, the student should be able to produce a final portfolio of printed works.
 3. Upon completion of this course, the student should be able to use language, terminology, and concepts observed in printmaking for critique of in class work.
-

Methods of Instruction

- Laboratory
 - Lecture/Discussion
-

Assignments

Reading Assignments

Other Assignments

Methods of Evaluation

- Homework
- Laboratory Assignments
- Oral Tests/Class Performance
- Participation
- Portfolio
- Problem Solving Exercises
- Skills Demonstrations/Performance Exam
- Other

Students will critically evaluate each other's work.

Course Materials

Other:

1. Paper, pencils, brushes, rags, ink, plexiglass, mounted linoleum, carving tools, etching needles, etc.

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 48A
Full Course Title: Alternative Processes
Short Title: Alt Process
TOP Code: -
Effective Term:

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 90.0
 Lecture hours: 36.0
 Lab hours: 54.0
 Hours outside of class: 72.0
Repeatable: No
Grading Method: Letter Grade Only

Minimum Qualifications for Instructors

- Photography (Masters Required)
-

Course Description

Introduction to historical and non-silver alternative photographic processes including cyanotype, van dyke, gum printing and image transfer. Students will develop a personal vision and explore various presentation techniques.

Conditions of Enrollment

Satisfactory completion of: ART 31 Concurrent enrollment or satisfactory completion of: ART 36A

Content

Course Lecture Content

1. The history and development of Photography and Alternative Processes
 - a. Photogenic Drawings
 - b. Daguerreotype
 - c. Wet Plate Photography
 - d. Tintypes
 - e. Van Dyke
 - f. Cyanotype
 - g. Gum Bichromate
2. The Negative
 - a. Digital Negatives

- b. Film Negatives
- 3. Chemical Safety
 - a. Handling Chemicals
 - b. Storage
- 4. Printing
 - a. Contact Printing
 - b. Equipment
- 5. Basic Design Concepts
 - a. The Photographic Process
 - b. Craft vs. Vision
 - c. Criticism

Course Lab/Activity Content

1. Lab content follows practice and critique of lecture material.
2. The history and development of Photography and Alternative Processes
 - a. Photogenic Drawings
 - b. Daguerreotype
 - c. Wet Plate Photography
 - d. Tintypes
 - e. Van Dyke
 - f. Cyanotype
 - g. Gum Bichromate
3. The Negative
 - a. Digital Negatives
 - b. Film Negatives
4. Chemical Safety
 - a. Handling Chemicals
 - b. Storage
5. Printing
 - a. Contact Printing
 - b. Equipment
6. Basic Design Concepts
 - a. The Photographic Process
 - b. Craft vs. Vision
 - c. Criticism

Objectives

1. Demonstrate proficiency with basic negative production, printing and alternative presentations. ****Requires Critical Thinking****
2. Produce a finished portfolio representing serious creative personal exploration intended to be viewed as a series. ****Requires Critical Thinking****
3. Apply various design concepts in emulsion application and presentation. ****Requires Critical Thinking****
4. Demonstrate a thorough understanding of alternative processes and procedures. ****Requires Critical Thinking****
5. Identify major influences and processes of 19th and 20th century photographers. ****Requires Critical Thinking****
6. Identify historical processes utilized in the development of photography ****Requires Critical Thinking****
7. Recognize and appreciate alternative processes in photography as an expressive and communicative medium. ****Requires Critical Thinking****

Student Learning Outcomes

1. Upon completion of this course, students will be able to demonstrate proficiency with basic negative production, printing, and alternative presentations.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Technological Awareness** Students will be able to select and use appropriate technological tools for personal, academic, and career tasks.
 2. Upon completion of this course, students will be able to demonstrate a thorough understanding of alternative processes and procedures.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 3. Upon completion of this course, students will be able to produce a portfolio that reflects an understanding of the alternative processes and effective visual communication.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
-

Methods of Instruction

- **Laboratory**
 - **Lecture/Discussion**
 - **Other**
Demonstrations, critique of portfolio
-

Assignments

Other Assignments

Assignment:

Cyanotypes

What:

Turn in a minimum of ten cyanotype prints as a hand bound book or art object. Prints can be as big or small as you want. This is your chance to experiment with presentation, there are no rules.

Concept:

Explore a single subject or idea photographically. Your book or art object should be able to stand together with each individual image and as an entire art piece. Take care to integrate the presentation into the concept.

Grading:

- **Composition** – are the images well composed and visually interesting?
 - **Concept** – Do the images work well as an alternative process print? Do the images belong together?
 - **Creativity** – Is the image novel in it's approach?
 - **Print Quality** – Is the print well exposed, with good tonal range and detail definition?
-

Methods of Evaluation

- **Homework**
- **Laboratory Assignments**

- Participation
 - Portfolio
 - Research Project
-

Course Materials

Textbooks:

1. Brian Arnold. *Alternate Processes in Photography*, Oxford University Press, 2017, ISBN: 978-0-19-939039-7
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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 48B
Full Course Title: Intermediate Alternative Processes
Short Title: Inter Alt Process
TOP Code: -
Effective Term:

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 90.0
 Lecture hours: 36.0
 Lab hours: 54.0
 Hours outside of class: 72.0
Repeatable: No
Grading Method: Letter Grade Only

Minimum Qualifications for Instructors

- Photography (Masters Required)
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Course Description

Further exploration of historical and non-silver alternative photographic processes and concepts attained in 48A. Students will be introduced to large format cameras. Personal vision and the pushing of photographic boundaries will be emphasized.

Conditions of Enrollment

Satisfactory completion of: ART 48A

Content

Course Lecture Content

1. Contemporary Issues in Alternative Processes
 - a. Daguerreotype
 - b. Wet Plate Photography
 - c. Tintypes
 - d. Van Dyke
 - e. Cyanotype
 - f. Gum Bichromate
2. Large Format Camera
 - a. Tilts, Shifts, Swings

- b. Exposure
 - c. Development
- 3. Experimental Print Surface Types
 - a. Various Paper Types
 - b. Alternative Surfaces
- 4. Book Binding
 - a. Coptic stitch
 - b. Saddle Stitch
 - c. Japanese Stab Bound

Course Lab/Activity Content

- 1. Lab content follows practice and critique of lecture material.
- 2. Contemporary Issues in Alternative Processes
 - a. Daguerreotype
 - b. Wet Plate Photography
 - c. Tintypes
 - d. Van Dyke
 - e. Cyanotype
 - f. Gum Bichromate
- 3. Large Format Camera
 - a. Tilts, Shifts, Swings
 - b. Exposure
 - c. Development
- 4. Experimental Print Surface Types
 - a. Various Paper Types
 - b. Alternative Surfaces
- 5. Book Binding
 - a. Coptic stitch
 - b. Saddle Stitch
 - c. Japanese Stab Bound

Objectives

- 1. Demonstrate proficiency with Large Format Camera. ****Requires Critical Thinking****
- 2. Apply various design concepts in emulsion application and presentation on nonconventional surfaces. ****Requires Critical Thinking****
- 3. Demonstrate a thorough understanding of alternative processes and procedures. ****Requires Critical Thinking****
- 4. Produce a finished portfolio that reflects technical and creative problem solving. ****Requires Critical Thinking****
- 5. Identify major influences and processes of Alternative Photography on contemporary photographers. ****Requires Critical Thinking****
- 6. Recognize and appreciate different display and presentation techniques. ****Requires Critical Thinking****

Student Learning Outcomes

- 1. Upon completion of this course, students will be able to demonstrate proficiency with Large Format

Camera.

- **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Technological Awareness** Students will be able to select and use appropriate technological tools for personal, academic, and career tasks.
2. Upon completion of this course students will be able to identify major influences and processes of Alternative Photography on contemporary photographers.
- **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
3. Upon completion of this course students will be able to produce a finished portfolio that reflects technical and creative problem solving.
- **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
-

Methods of Instruction

- **Laboratory**
 - **Lecture/Discussion**
 - **Other**
Demonstrations, critique of students work
-

Assignments

Other Assignments

Assignment:

Cyanotypes

What:

Turn in a minimum of ten cyanotype prints as a hand bound book or art object. Prints can be as big or small as you want. This is your chance to experiment with presentation, there are no rules.

Concept:

Explore a single subject or idea photographically. Your book or art object should be able to stand together with each individual image and as an entire art piece. Take care to integrate the presentation into the concept.

Grading:

- **Composition** – are the images well composed and visually interesting?
 - **Concept** – Do the images work well as an alternative process print? Do the images belong together?
 - **Creativity** – Is the image novel in it's approach?
 - **Print Quality** – Is the print well exposed, with good tonal range and detail definition?
-

Methods of Evaluation

- **Homework**
- **Laboratory Assignments**
- **Participation**
- **Portfolio**

- **Research Project**
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Course Materials

Textbooks:

1. Brian Arnold. *Alternate Processes in Photography*, Oxford University Press, 2017, ISBN: 978-0-19-939039-7
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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 8A
Full Course Title: Watercolor Painting
Short Title: Watercolor Painting
TOP Code: 1002.00 - Art/Art Studies, General
Effective Term: Fall 2013

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 108.0
 Lecture hours: 27.0
 Lab hours: 81.0
 Hours outside of class: 54.0
Repeatable: No
Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Art (Masters Required)
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Course Description

Basic principles and elements of watercolor painting in various techniques; wet on wet, washes, and dry brush. Concepts of form, color, content, and space are explored.

Conditions of Enrollment

Satisfactory completion of: ART 4A

Advisories

- Language - recommended eligibility for English 1A
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Content

Course Lecture Content

1. Experimentation with art media.
 2. Construction and preparation of various watercolor grounds.
 3. Exploration of basic concepts, techniques.
 4. Textures and technical craft.
 5. Criticism and evaluation of works.
-

Objectives

1. Apply watercolor technique to assigned project work. ****Requires Critical Thinking****
 2. Demonstrate use of the elements of art and principles of composition in student work. ****Requires Critical Thinking****
 3. Develop ability to work from reality and imagination. ****Requires Critical Thinking****
 4. Critique finished watercolor project work. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, the student will be able to use language effectively to critique in class watercolor assignments.
 2. Upon completion of this course, the student will be able to translate ideas and visual experience into compositions using watercolor media.
 3. Upon completion of this course, the student will be able to identify materials, color concepts, techniques of watercolor media.
-

Methods of Instruction

- Laboratory
 - Lecture/Discussion
-

Assignments

Other Assignments

Methods of Evaluation

- Laboratory Assignments
 - Oral Tests/Class Performance
 - Participation
 - Portfolio
 - Skills Demonstrations/Performance Exam
 - Other
 - Sketchbook for watercolor prep drawings
-

Course Materials

Textbooks:

1. Crespo, Michael . *Watercolor Day by Day*, 1st ed. Watson - Guptill Publications, 1987, ISBN: 978-0823056682

Other:

1. Supply list presented in 1st class.
-

Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ART 9A
Full Course Title: Beginning Painting
Short Title: Beg Painting
TOP Code: 1002.00 - Art/Art Studies, General
Effective Term: Fall 2013

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 108.0
 Lecture hours: 27.0
 Lab hours: 81.0
 Hours outside of class: 54.0
Repeatable: No
Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Art (Masters Required)
-

Course Description

Introduction to the principles, elements, and practices of painting. Focus on painting materials, perceptual skills and color theory, paint mixing and technique, and creative response to materials and subject matter.

Content

Course Lecture Content

1. Exploration of physical properties of painting materials
2. Organization and application of the basic formal elements and principles of design as they relate to painting
3. Observationally and theoretically based investigation of color theory, as it relates to painting practice
4. Construction and preparation of painting surfaces and supports
5. Use and application of materials and tools of painting
6. Development of expressive content through manipulation of mark, color, value, and composition
7. Historical and contemporary developments, critical trends, materials, and approaches in painting, including representational, expressive, abstract, or non-objective approaches
8. Critical evaluation and critique of class projects using relevant terminology in oral or written formats
9. Studio, equipment, and material use and safety

Course Lab/Activity Content

Through lecture and demonstration, students will be introduced to concepts in:

1. Compositional technique
 2. How to create a ten step grey scale and incorporate this into painted works
 3. Understand the ideas and theory behind compliment colors and how to utilize this in painted works
 4. Drawing composition in preparation for painted works
 5. Use of the full palette in painting
 6. One, two and three point perspective techniques in drawing and painting
 7. Use of neutral color for portraits
-

Objectives

1. Create paintings that utilize a working knowledge of the physical properties of painting materials; ****Requires Critical Thinking****
 2. Organize and apply the basic formal elements and principles of design in paintings; ****Requires Critical Thinking****
 3. Apply the principles of perceptually and theoretically based color theory to painting projects; ****Requires Critical Thinking****
 4. Examine and describe historical and contemporary developments, trends, materials and approaches to painting;
 5. • Emphasis on painting from life (vs. photo) • Emphasis on realism • Attention brought to abstract principles of composition ****Requires Critical Thinking****
 6. Develop expressive content through manipulation of mark, color, value and composition; ****Requires Critical Thinking****
 7. Assess and critique paintings in group, individual using relevant critique formats; ****Requires Critical Thinking****
 8. Safely handle and use studio painting materials and equipment. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, the student will be able to use language effectively to critique in class painting assignments.
 2. Upon completion of this course, the student will be able to translate ideas and visual experience into compositions using acrylic painting media.
 3. Upon completion of this course, the student will be able to identify materials, color concepts, techniques, and concepts of painting with acrylics.
-

Methods of Instruction

- Laboratory
 - Lecture/Discussion
-

Assignments

Writing Assignments

Do three sketches in preparation for assigned in class painting work.

Other Assignments

Each student will give a five minute (or longer) report on:

1. The chosen painter's work and biographical history with emphasis on historical or contemporary significance, and introduce and discuss three representative works of the chosen artist.
2. Present a relative survey of the painter's professional career and accomplishment(s).
3. The student shall state why they chose the specific artistic style as relevant aesthetic for discussion.

Methods of Evaluation

- Essay/Paper
- Homework
- Laboratory Assignments
- Oral Tests/Class Performance
- Participation
- Portfolio
- Research Project

Course Materials

Textbooks:

1. Ray Smith. *An Introduction to Acrylics*, 1st ed. Dorling Kindersley, 1993, ISBN: 978-0-7894-3287-2
Equivalent text is acceptable

Other:

1. Paints, brushes, and canvases

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STUDIO ARTS

ASSOCIATE IN ARTS FOR TRANSFER

Description

The Associate in Arts in Studio Arts for Transfer Degree provides students with the opportunity to complete the freshman/sophomore level classes needed for a Bachelor's degree in Studio Arts within the California State University system. Upon completion of the Associate in Arts in Studio Arts for Transfer degree, students will be able to apply foundational knowledge and skills that compose the core content of the first two years of many four-year programs in Studio Arts.

The Associate in Arts in Studio Arts for Transfer Degree (as stated in SB1440 law) requires students to also complete the following:

- Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University
- The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education – Breadth Requirements
- A minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district
- Earn a grade of "C" or better in all courses required for the major
- Obtainment of a minimum grade point average of 2.0

The student should contact a counselor for more information on program and transfer requirements.

To obtain an Associate's Degree for Transfer, students must complete both the major requirements and the graduation requirements listed in this catalog.

Note that some courses have a pre-requisite (P), co-requisite (C), or both (P/C). Pre-requisites and co-requisites are listed within each course description in this catalog.

Transfer majors designated as AA-T or AS-T are designed for transfer to a similar major at an unspecified CSU. Transfer majors designated as AA or AS are designed for transfer to the corresponding major at a specific CSU, and are based on articulation (See a counselor for more information. Read about the difference between these types of degrees at the beginning of the Transfer section of this catalog.)

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Articulate and communicate a broad knowledge of both the history and the practice of various studio arts media.
2. Demonstrate a specific practice and personal skill of various studio arts media.
3. Engage in both community and professional practice in the exhibition of personal work.

Program Requirements:

Core Courses: Complete the following courses to 12 units

ART1B	History of Art-II	3
ART4A	Drawing and Composition Beginning	3
ART6A	Beginning Basic Design	3
ART6B	Intermediate Basic Design, 3-D	3

Course Block Units: (12 Required)

Art History Restricted Electives: Select one course to total 3 units

Course Block Units: (3 Required)

from the following.

ART1A	History of Art-I	3
ART20	African, Oceanic, and Native American Art History Survey	3
ART21	Asian Art History	3

Studio Arts Restricted Electives: Select one course from any three of the following areas for a maximum of 9 units

Course Block Units: (9 Required)

Drawing

ART4B	Drawing and Composition Intermediate	3
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Painting

ART9A	Beginning Painting	3
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Printmaking

ART15A	Beginning Printmaking	3
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Ceramics

ART12A	Beginning Ceramics	3
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Sculpture

ART14A	Beginning Sculpture	3
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Photography

ART31	Basic Photography	3
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Color

ART2	Color Theory	3
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Second Semester

ART12B	Intermediate Ceramics	3
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ART14B	Intermediate Sculpture	3
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ART36A	Digital Photography	3
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ART9B	Intermediate Painting	3
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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: ASTRO 1
Full Course Title: Introduction To Astronomy
Short Title: Intro to Astronomy
TOP Code: 1911.00 - Astronomy
Effective Term: Spring 2013

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 54.0
 Lecture hours: 54.0
 Hours outside of class: 108.0
Repeatable: No
Grading Method: Letter Grade Only

Minimum Qualifications for Instructors

- Physics/Astronomy (Masters Required)
-

Course Description

Survey of the solar system, stars, galaxies, history and tools of astronomy, cosmology, and exploration of space.

Content

Course Lecture Content

1. Earth's position in the universe, a survey.
 2. History of Astronomy from earliest times to the time of Newton and Einstein.
 3. Motions of celestial objects: Kepler's and Newton's Laws applied to planets, comets, moon (tides and eclipses), artificial satellites and space vehicles.
 4. Atomic and nuclear structure, the electromagnetic spectrum and astronomical tools.
 5. Description of the solar system: Earth as a planet, other planets, asteroids, comets, meteors and our sun.
 6. Size, composition, and age of the universe.
 7. Stars: sun as a star, inventory of stars and their properties, star groups, interstellar space.
 8. Galaxies: the Milky Way galaxy, inventory of galaxies and properties, quasars.
 9. Cosmology, relativity and the future.
 10. The possibility of extraterrestrial life.
-

Objectives

1. Describe apparent motions of celestial objects.

2. Describe the contributions to science of Ptolemy, Copernicus, Tycho Brahe, Kepler, Galileo, Isaac Newton, and Albert Einstein.
 3. Relate the laws of Kepler, Newton, and Einstein to the motions of the planets and other celestial bodies.
 4. Relate the physical principles involved in the structure of the atom and its nucleus to the properties of electromagnetic waves.
 5. Describe the objects that comprise the solar system and the reason for their known motions.
 6. Define the methods of measuring distance and time on the astronomical scale.
 7. Analyze stellar evolution of various stars of various masses.
 8. List the basic types of galaxies and describe their properties and evolution.
 9. Relate Hubble's Law to the evolution of the Universe from the Big Bang to the present time and on into the future.
 10. Analyze the motion of the moon.
 11. Describe and predict the motion of the planets and the sun.
 12. Describe the cause of the seasons on Earth.
 13. Measure distances using parallax techniques.
 14. Make a Hertzsprung-Russell diagram and explain its significance.
 15. Explain the cause of the phases of the Moon with the aid of a drawing. ****Requires Critical Thinking****
 16. Using the Laws of Kepler and Newton, explain and predict the motion of the heavenly bodies. ****Requires Critical Thinking****
 17. Using Hubble's law, explain the expansion of the Universe and the age of the Universe. ****Requires Critical Thinking****
 18. Explain the presently accepted theory of the evolution of the Universe: its birth, its life and its death in terms of accepted astronomy theory. ****Requires Critical Thinking****
 19. Use a Hertzsprung-Russell diagram to explain the life cycle of stars. ****Requires Critical Thinking****
 20. State the major factors that need to be known to answer the question as to whether there is life as we know it elsewhere in the Universe. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, students will be able to demonstrate reasoning skills that are important in astronomy, such as order of magnitude estimating.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
2. Upon completion of this course, students will be able to describe the structure and evolution of stellar objects.

- **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
3. Upon completion of this course, students will be able to summarize the ongoing arguments and progress at the forefront of astronomy on topics, such as dark matter/energy, the big bang, exoplanets, and gravitational wave astronomy in a manner understandable to the general public and high school students.
- **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
-

Methods of Instruction

- **Lecture/Discussion**
 - **Other**
Demonstrations
-

Distance Education

Delivery Methods

- Online
-

Assignments

Reading Assignments

Read ch-1 to ch-3 of the textbook; and recommended to practice following questions.

Q.N:1 What is the effect of the expansion of the universe?

- a. The distant galaxies are getting farther apart from each other.
- b. Each galaxy is getting larger.
- c. The solar system is getting larger.
- d. All of the above.

Q.N:2 At the speed of light, how long would it take to go from Earth to the Sun?

- a. about a second b. about a minute c. about 8 minutes d. about a day e. about a year

Q.N:3 About how old is Earth?

- a. 6000 years b. 1 million years c. 1 billion years d. 5 billion years e. 14 billion years

Q.N:4 Put these objects in the correct order, from nearest to farthest from Earth:

- a. The Sun, the center of the Milky Way, Alpha Centauri, Pluto, the Andromeda Galaxy
- b. The Sun, Alpha Centauri, Pluto, the Andromeda Galaxy, the center of the Milky Way
- c. The Sun, Pluto, Alpha Centauri, the center of the Milky Way, the Andromeda Galaxy

d. Pluto, the Sun, Alpha Centauri, the center of the Milky Way, the Andromeda Galaxy.

Q.N:5 A map of the entire sky, as seen from Earth, is called

- a. a meridian.
- b. a sky finder.
- c. the celestial sphere.
- d. the celestial directory.

Q.N:6 What makes Polaris a special star?

- a. It is the brightest star in the sky.
- b. It is always directly overhead, no matter where you are.
- c. It is very close to the north celestial pole on the celestial sphere.
- d. Its azimuth (direction) is always due north.

Q.N:7 Every location on the celestial sphere is part of some

- a. degree.
- b. tropic.
- c. constellation.
- d. sign.

Q.N:8 The constellations in which the Sun appears over the course of each year are called

- a. circumpolar stars
- b. circumsolar stars
- c. the constellations of the zodiac
- d. the tropical constellations
- e. solstice stars

Q.N:9 When it is summer in the United States, in Australia it is

- a. winter.
- b. summer.
- c. spring.
- d. fall.

Q.N:10 If the tilt of Earth's axis to its orbital plane were 40 degrees, instead of $23\frac{1}{2}$, but its distance from the Sun remained the same, what would happen to the seasons?

- a. They wouldn't change much.
- b. They would become less extreme—winter and summer would be more alike.
- c. They would become more extreme—winter colder and summer warmer.

Q.N:11 If you were on the Moon, Earth would

- a. show no phases.
- b. show phases the same as the Moon (when it is full Moon, it is full Earth, etc.).
- c. show phases opposite to the Moon (when it is full Moon, it is new Earth, etc.).

Q.N:12 On any given day, are the constellations that are visible in the sky in the United States different than they are in Argentina?

- a. Yes, the skies in Argentina are notable for their clarity, therefore you can see many more stars there than in the U.S.
- b. Yes, Argentina's southern location affords us a different view of the night sky from what is visible in the U.S.
- c. No, the skies are exactly the same in both Argentina and the U.S.
- d. No, the constellations are upside down so they appear different but they are actually the same.
- e. This might be true if the visit occurred in the winter when different constellations are visible than in the summer.

Q.N:13 True or False: If Earth's orbit were a perfect circle, we would not have seasons.

- a. True, because Earth would be at the same distance from the Sun throughout its orbit, there would be no summer or winter.
- b. True, it is the deviations from a circular orbit that create the seasons.
- c. False, the seasons are due to the tilt of Earth's axis, not its distance from the Sun.
- d. False, the poles would still be cooler than the equator and seasonal variations would therefore still exist.
- e. False, whether circular or not, the seasons depend on the precession of Earth's axis as it orbits the Sun.

Q.N:14 The angular size of the Moon in the sky is about

- a. $\frac{1}{2}$ degree.
- b. 5 degrees.
- c. 10 degrees.
- d. 1.6 kilometers.
- e. 4000 kilometers ($\frac{1}{4}$ Earth's diameter).

Q.N:15 At least some ancient cultures used careful observations of the sky

- a. to determine the seasons
- b. to decide when to plant crops
- c. to navigate on long voyages
- d. to time religious ceremonies
- e. all of the above

Q.N:16 Who proposed a model with the Sun (rather than Earth) at the center of the solar system, which was then tested by the other people listed below?

- a. Copernicus
- b. Tycho
- c. Kepler
- d. Galileo

Q.N:17 What does not characterize a scientific explanation?

- a. It is based on the ideas of the smartest people.
- b. It is based on a model of nature.
- c. It is based on observations.
- d. It is tested through prediction and experiments.

Q.N:18 What did Tycho do that advanced astronomy significantly?

- a. He realized that orbits didn't have to be circles, they could be ellipses.
- b. He made more accurate observations than anyone before him.
- c. He thought of the idea of circles moving on circles (epicycles) to explain planetary motion.

Q.N:19 In science, saying that something is a theory means that it is really just a guess.

- a. Yes, but a guess by a highly educated person.
- b. Yes, but it has strong support by other scientists.
- c. No, a model only becomes a scientific theory after it has been well tested.

d. No, it must have detailed mathematical equations to back it up.

e. No, a theory is published in books, a guess isn't.

Q.N:20 Which of the following are not units for velocity?

a. feet/sec b. meters/sec c. inches/year d. meters/sec/sec

Q.N:21 If there is no net force on an object

a. it doesn't move. b. its velocity doesn't change.

c. it will slow down. d. all of the above.

Q.N:22 Temperature is a measure of

a. how much heat an object contains. b. how fast atoms or molecules are moving.

c. how hot you feel when you touch something. d. both (b) & (c)

Q.N:23 What is the primary cause of the tides on Earth?

a. gravity from Earth's core

b. gravity from the Moon pulling on the oceans

c. gravity from the Moon pulling harder on one side of Earth than the other

d. gravity from the Moon and/or the Sun pulling harder on one side of Earth than the other.

Q.N:24 True or False: Newton's version of Kepler's third law allows us to calculate the mass of Saturn from orbital characteristics of its moon Titan.

a. True, but we can measure Saturn's mass more precisely by measuring how long it takes to orbit the Sun.

b. True, knowing Titan's period and the semi-major axis of its orbit allows us to calculate Saturn's mass.

c. False, we can only measure Titan's mass this way, not Saturn's.

d. False, we have to measure all of Saturn's moons' orbits, not just Titan's.

e. False, this can be done for other planets but not Saturn because of its rings.

Q.N:25 The names of the seven days of the week are based on the

A) seven naked-eye objects that appear to move among the constellations.

B) seven planets closest to the Sun.

C) seven brightest stars in the prominent constellation Orion.

D) most popular Norse gods.

E) seven largest constellations of the ancient world.

Q.N:26 Why did Ptolemy have the planets orbiting Earth on "circles upon circles" in his model of the universe?

A) to explain why more distant planets take longer to make a circuit through the constellations of the zodiac

B) to explain the fact that planets sometimes appear to move westward, rather than eastward, relative to the stars in our sky

- C) to explain why the Greeks were unable to detect stellar parallax
- D) to properly account for the varying distances of the planets from Earth
- E) to explain why Venus goes through phases as seen from Earth

Q.N:27 Which person below wrote a book, published in 1543 (the year of his death), suggesting that Earth and other planets orbit the Sun?

- A) Tycho Brahe B) Copernicus C) Kepler D) Galileo E) Ptolemy

Q.N:28 Which person below discovered that the orbits of planets are ellipses?

- A) Tycho Brahe B) Copernicus C) Kepler D) Galileo E) Ptolemy

Q.N:29 The point along a planet's orbit where it is closest to the Sun is called the orbit's

- A) perihelion. B) aphelion. C) eccentricity.
- D) semimajor axis. E) period.

Q.N:30 In its original form, Kepler's third law states that $p^2 = a^3$. What units must p and a use?

- A) p must be years and a must be astronomical units.
- B) p must be months and a must be astronomical units.
- C) p must be years and a must be kilometers.
- D) p must be days and a must be miles.
- E) p must be months and a must be kilometers.

Q.N:31 What is the *Kuiper belt*?

- A) a region of the solar system beginning just beyond the orbit of Neptune that contains many icy comets
- B) a region of the solar system that extends almost a fourth of the way to the nearest stars and contains a trillion comets with orbits going in all directions around the Sun
- C) a technical name for the asteroid belt
- D) the most prominent ring of Saturn that is visible in photographs

Q.N:32 What is the *Oort cloud*?

- A) It's not really a cloud at all, but rather refers to the trillion or so comets thought to orbit the Sun at great distances.
- B) It is another name for the cloud of gas from which our solar system was born.
- C) It is a great cloud of gas that resides far beyond the orbit of Pluto.
- D) It is a giant storm in the atmosphere of Saturn.

Q.N:33 What is unusual about the planet Venus?

- A) It rotates in a direction opposite to the direction of its orbit.

- B) It orbits the Sun faster than it should give the size of its orbit.
- C) It orbits the Sun in a direction opposite that of all the other planets.
- D) It does not orbit the Sun in the same plane as the other planets.
- E) It rotates extremely rapidly around its axis.

Q.N:34 Where are most asteroids found?

- A) between the orbits of Mars and Jupiter B) between the orbits of Jupiter and Saturn
- C) in the Oort cloud D) inside the orbit of Earth
- E) between the orbits of Earth and Mars

Q.N:35 Which of the following is *not* a characteristic of *all* the terrestrial planets?

- A) They are smaller than the jovian planets. B) They have solid, rocky surfaces.
- C) They are located closer to the Sun than the jovian planets. D) They have substantial atmospheres.
- E) They have higher densities than the jovian planets

Writing Assignments

1. Write a one page essay describing how the ideas presented in the chapter 'A modern view of the universe' affect your perspectives on your life and on human civilization.
 2. Just as light-year is the distance that light can travel in 1 year, a light-minute is the distance that light can travel in 1 minute. What is a light-minute in kilometers?
-

Methods of Evaluation

- Assignments
 - Class Performance
 - Homework
 - Objective Tests
 - Quizzes
-

Course Materials

Textbooks:

1. Bennett, Donahue, Schneider, Voit. *The cosmic perspective fundamentals*, 3rd edition ed. Pearson, 2019, ISBN: 9780134988504
Equivalent text is acceptable

Other:

1. Film series by Coast Learning Systems that accompanies the text by Seeds. 20 thirty-minute segments, one for each chapter
-

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: BIOL 10L
Full Course Title: General Biology
Short Title: General Biology
TOP Code: 0401.00 - Biology/Biological Sciences, General
Effective Term: Spring 2009

Course Standards

Course Type: Credit - Degree Applicable
Units: 4.0
Total class hours: 216.0
 Total contact hours in class: 108.0
 Lecture hours: 54.0
 Lab hours: 54.0
 Hours outside of class: 108.0
Repeatable: No
Grading Method: Letter Grade Only

Minimum Qualifications for Instructors

- Biological Sciences (Masters Required)
-

Course Description

The science of life for non-science majors. Provides an overview of the world of living organisms including their classification and unifying characteristics. Introduces basic biological processes such as homeostasis, photosynthesis, cellular respiration, DNA function, cellular reproduction, evolution, and ecosystem interactions with an emphasis on the relationship of structure to function and the interrelationships of living organisms. Labs and lectures. Not open for credit to students with credit in BIOL 10.

Conditions of Enrollment

Advisories

- Language - recommended eligibility for English 1A
-

Content

Course Lecture Content

1. The Science of Life
 - a. Defining characteristics of life
 - b. Breadth of biology
 - c. Scientific method
 - d. Science as a way of understanding the world
 - i. Types of studies
 - ii. Goals and limits of science
 - iii. Critical thinking as consumers of scientific information
2. Classifying Life
 - a. Characteristics of the three domains

- b. Characteristics of the Kingdoms in the Domain Eukarya
 - c. Acellular Particles - where do they fit in
- 3. Chemistry of Life
 - a. Basic chemistry
 - b. Importance of carbon
 - c. Organic macromolecules (structure and function)
 - d. Enzymes (structure, function, environmental influences)
- 4. Biology of Cells
 - a. Overview of organelles (types and functions)
 - b. Cell types
 - c. Cell membrane structure and function
 - d. Limits to cell size
- 5. Energy Flow
 - a. Photosynthesis
 - b. Cellular respiration
 - c. Fermentation
 - d. Interrelationships of these processes
- 6. DNA Function
 - a. Overview
 - b. Transcription
 - c. Translation
 - d. Gene expression/control
 - e. Mutations
- 7. Cellular Reproduction
 - a. The cell cycle
 - b. DNA replication
 - c. Mitosis
 - d. Meiosis
 - e. Genetic variation
 - f. Cancer
- 8. Genetics and Biotechnology
 - a. Basic genetics terminology
 - b. Alleles and their different combinations
 - c. Predicting phenotypes/genotypes
 - d. Sex determination
 - e. Biotechnology definition and modern uses
- 9. Evolution
 - a. Microevolutionary processes
 - b. Macroevoolutionary processes
 - c. Evidence for evolution; common misconceptions
- 10. Ecosystems
 - a. Definition and examples
 - b. Biomes overview
 - c. Biotic components
 - d. Abiotic components including natural cycles
 - e. Energy flow/Trophic levels
- 11. Population and Community Ecology
 - a. Population dynamics
 - b. Life history traits
 - c. Community dynamics
 - d. The niche
- 12. Human Systems Overview
 - a. Define homeostasis for human body
 - b. Connect specific body systems and organs with the following essential processes:
 - i. Obtaining oxygen
 - ii. Obtaining nutrients
 - iii. Removing wastes
 - iv. Fighting disease
 - v. Coordination among all body systems

Course Lab/Activity Content

- 1. Scientific Terminology
- 2. Hypothesis Testing
- 3. Metric Measurements

4. Taxonomy and the Diversity of Life
 5. Chemistry of Cells
 6. Microscopes and Cells
 7. Enzymes
 8. Diffusion and Cell Size
 9. Diffusion and Osmosis
 10. Respiration
 11. Yeast Fermentation
 12. Photosynthesis
 13. Introduction to Mitosis
 14. Probability and Genetics
 15. Genetics and Human Variation
 16. DNA and Protein Synthesis
 17. Introduction to Biotechnology
 18. Evolution (Population Genetics)
 19. Animal Structure and Function
 20. Human Senses
-

Objectives

1. List the unifying characteristics and processes common to all living things. ****Requires Critical Thinking****
2. Describe the scientific method and describe how it is applied in the biological sciences; recognize questions that can and cannot be answered by the scientific method. ****Requires Critical Thinking****
3. Demonstrate critical evaluation of sources for use in furthering knowledge about biological topics. ****Requires Critical Thinking****
4. List the names and defining characteristics of the three Domains and the four Kingdoms within the Domain Eukarya.
5. Explain the relationship of atoms and molecules; list the main types of atomic and molecular bonds important for biological systems and explain why they are important.
6. List the four macromolecules needed to build a cell and describe their functions.
7. Define "enzyme" and describe how their structure relates to their function.
8. Distinguish between a prokaryote and eukaryote.
9. List the key organelles in a typical eukaryotic cell and know their function(s).
10. Describe the structure of the cell membrane and how that relates to its functions. ****Requires Critical Thinking****
11. List the reactants and products for photosynthesis and cellular respiration; describe how the two processes are related to energy flow through ecosystems.
12. Describe what distinguishes fermentation from aerobic cellular respiration, which organisms use this process and why it is important for humans.
13. Explain how DNA, RNA, proteins and overall cell/organism function are related.
14. Explain several reasons for cellular reproduction; distinguish between mitosis and meiosis; and define cancer.
15. Define genetic variation and explain its biological significance.
16. Explain the relationship of chromosomes, genes, alleles and inheritance.
17. Distinguish between phenotype and genotype.
18. Explain mammalian sex determination.
19. Define and recognize examples of biotechnology in a variety of fields. ****Requires Critical Thinking****

20. Describe the basic mechanisms of microevolution including natural selection; define adaptation and give examples.
 21. Describe the process of speciation.
 22. Describe the various lines of evidence for macroevolution and the common misconceptions regarding evolution. ****Requires Critical Thinking****
 23. Define ecosystem, identify biotic and abiotic component parts, and recognize examples.
 24. Define biome and recognize examples.
 25. Explain how energy is transferred through trophic levels in ecosystems and how this influences the composition of different trophic levels. ****Requires Critical Thinking****
 26. Define ecology, population, and community.
 27. Explain the nature of the following community interactions and be able to provide examples of each: predator-prey interactions, competition, and symbiosis.
 28. Define niche and give examples of specialist and generalist species.
 29. List the major human body systems and determine the primary organs that contribute to the following functions: obtaining oxygen, obtaining nutrients, removing wastes, fighting disease, and coordination among all body systems.
 30. In the laboratory setting, in addition to demonstrating and applying knowledge listed above, demonstrate observational and experimental skills to formulate questions and draw conclusions about living organisms, their component parts and the natural world. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, students will be able to explain the relationship between atoms and molecules. This will include recognizing and memorizing information on atomic structure and bond types. Students will be able to apply this knowledge to describe major biological macromolecules and their roles in the cell.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 2. Upon completion of this course, students will be able to illustrate/identify key organelles in a typical Eukaryotic cell and summarize their function(s).
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 3. Upon completion of this course, students will be able to explain the flow of energy within cells on earth. Students will be able to state the reactants and products for cellular respiration and photosynthesis.
 4. Upon completion of this course, students will be able to define common genetic terms such as chromosomes, genes, alleles, genotype and phenotype. Students will apply this knowledge to illustrate the movement of chromosomes in mitosis and meiosis.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 5. Upon completion of this course, students will be able to describe and defend the various lines of evidence for macroevolution and microevolution, and refute the common misconceptions regarding evolution.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
-

Methods of Instruction

- **Laboratory**
Laboratory includes or may include: 1. White board (Chalk Talk) 2. Powerpoint 3. Video 4. Hands on laboratory Activities 5. Student Groups/Discussions 6. Virtual Laboratory Activities 7. Take home pre/post laboratory assignments

- **Lecture/Discussion**

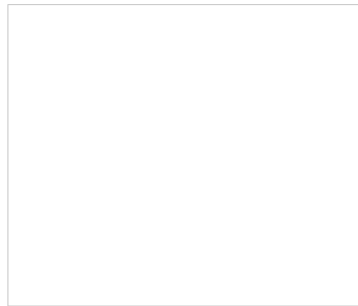
Lecture includes or may include: 1: White board (Chalk Talk) 2: Powerpoint 3: Video 4: Student Groups/Discussions 5: Student activities (models/handouts/etc.)

Assignments

Writing Assignments

Example Midterm #3 of 4 Short Answer:

51. Below a simplified cell is shown immediately before beginning **Meiosis**. The cell has 2 pairs of homologous chromosomes that will be separated into four gamete cells during meiosis. Draw the cell as it progresses through the different stages of **MEIOSIS** (6 pts). **YOU SHOULD END WITH 4 CELLS!!!!**



Prophase I

Prophase II

Metaphase I

Metaphase II

Anaphase I

Anaphase II

Telophase and Cytokinesis I
Cytokinesis II

Telophase and

52. On the previous page you drew a cell that was going through Meiosis. Mitosis is different than Meiosis because homologous chromosomes do not pair. Please draw the same cell from the previous page going through prophase, metaphase and anaphase of Mitosis below (6pts):

Prophase

Metaphase

Anaphase

53. Imagine you have a tall homozygous tall and homozygous short pea plant and you wish to cross them. Tall is dominant trait (T) and short is recessive (t). (6 pts)

- What is the genotype of the short pea plant? _____
- What is the genotype of the tall pea plant? _____
- Draw a Punnett square showing a cross between your tall parent and short parent.
- Now you decide to cross the F1 progeny together to create a second generation. Draw Punnett square showing an F1 x F1 cross below.
- What are the expected genotypic frequencies in the F2?
- What are the expected phenotypic frequencies in the F2?

54. Pea flowers may be purple (*P*) or white (*p*). Pea seeds may be round (*R*) or wrinkled

(r). Assume you cross the following two plants: $PpRr \times PpRr$ (10pts)

1. How many different gametes can each individual above form? _____
 2. What are the different gametes?
 3. Draw and complete a Punnett square for this cross to the right?
 4. What fraction of the offspring will have purple flowers and wrinkled seeds?
55. Assume that a female who is a carrier for the color-blind allele. Color-blindness is caused by an **X-linked recessive** disease. (4pts)
- a. What is the woman's genotype? Use correct nomenclature: _____
 - b. Assume a man that is normal at the color-blind gene marries this woman. What is his genotype? _____
 - c. What percentage of these individuals sons will be colorblind? Show your Punnett square.
56. Below you are given a specific DNA sequence, as well as the genetic code. Please provide the information requested (4 points):

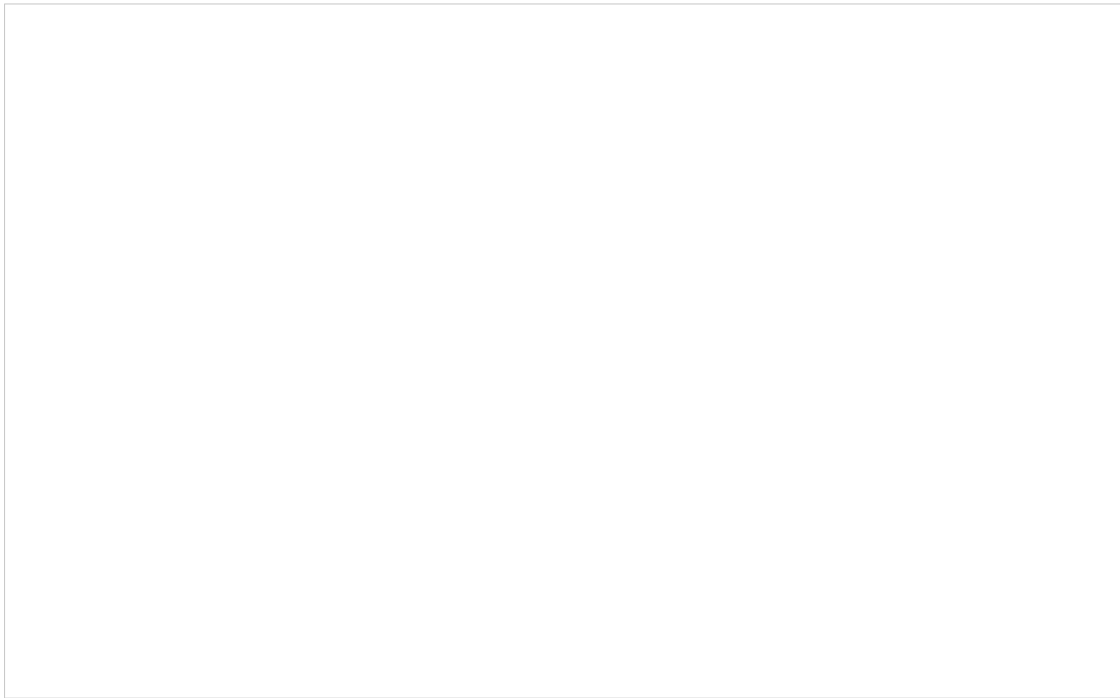
DNA Sequence:

T A C C A T G A C G G G A C T

- a) Please complete a complimentary **DNA strand** from the one above that would be created by DNA replication (1 points):
- b) Using the **original DNA strand**, please complete a complimentary RNA strand that would be produced from this strand during transcription (1 points)?
- c) Using the RNA strand produced what would be the amino acid sequence of the protein produced, starting from the beginning of the RNA strand (2 points)?

code

57. Fill in the following chart describe the molecules, enzymes and processes involved in the CENTRAL DOGMA. On the diagram lettered lines (3) are names of process or genetic terms, numbered lines (3) are names of molecules. There are 6 lines in total to fill in (3 points).



58. In the space you are provided a diagram that shows a polypeptide (protein) built of different amino acids (shapes) and an mRNA message. (5 points)

Draw a ribosome with the AAA codon in the P-site.

Be sure to label all of the following:

1. Small ribosome subunit
2. Large ribosome subunit
3. P, E and A binding sites
4. tRNA's
5. Amino acids

A A G G G X X X X X X X X X C C C A

58. Draw the cell cycle in the correct order to the right. Be sure to label all the phases. For each of the phases listed describe what is occurring (note all phases are not listed!). (6 points)

- a. G2:
- b. G1:
- c. S:
- d. Mitosis

59. Assume that an animal cell and plant cell that are almost finished with telophase in mitosis. Draw how cytokinesis proceeds in both types of cells below (2 points):

ANIMAL CELL

PLANT CELL

60. EXTRA CREDIT Use the pedigree analysis below to the right. To answer the following

questions (3 points):

- a) Which number 1,2,3 or 4 is an affected female? _____
- b) Which number 8,9,10 or 11 is an unaffected male? _____
- c) Which number 1,3,8 or 14 is in the second generation? _____
- d) How many offspring did couple 3+4 have? _____
- e) Is this disease being transmitted as (circle your answer):

Pedigree chart showing Autosomal Recessive example

autosomal dominant

autosomal recessive

X-linked recessive

Other Assignments

Example Homework #1/15:

Name: _____

Biology 10

Homework #1

Life, Atoms and Bonds

Answer the following questions regarding life and cell theory:

1. State the entire concept (both parts) of cell theory.
2. List the 7 major characteristics shared by all life.
 - i. _____
 - ii. _____
 1. _____
 - iv. _____
 - v. _____
 - vi. _____

Answer the following questions using the periodic table displayed:

1. What is mass number of Nitrogen (N)? _____
2. The element oxygen (O) contains how many protons? _____

- What is the atomic number for sulfur (S)? _____
- The element chlorine (Cl) contains how many neutrons? _____
- Isotopes are versions of an atom with the same atomic number but different mass numbers. If an isotope of carbon has a mass of 13 AMU how many protons are in the nucleus? How many neutrons?
Neutrons: _____ Protons: _____

Answer the following questions regarding electrons using the periodic table displayed.

- The element carbon (C) contains how many electrons? _____
- The element carbon (C) contains how many electrons in its outermost shell? _____
- The element Argon (Ar) contains how many electrons in its outermost shell? _____
- How many electron shells exist in an atom of Hydrogen (H)? _____
- How many electron shells exist in an atom of Oxygen (O)? _____
- How many valence electrons does an oxygen (O) atom contain? _____
- Ions are elements where the number of electrons does not equal the number of protons. This results in the atom having a charge. How many electrons exist in a Cl⁻ ion? (HINT: Remember this is a negatively charged ion!) _____
- What shell is the outer or valence shell in a nitrogen atom? _____

Drawing an Atom. In the space provided below please draw the following atoms and show their correct electron shells and electron numbers.

Carbon

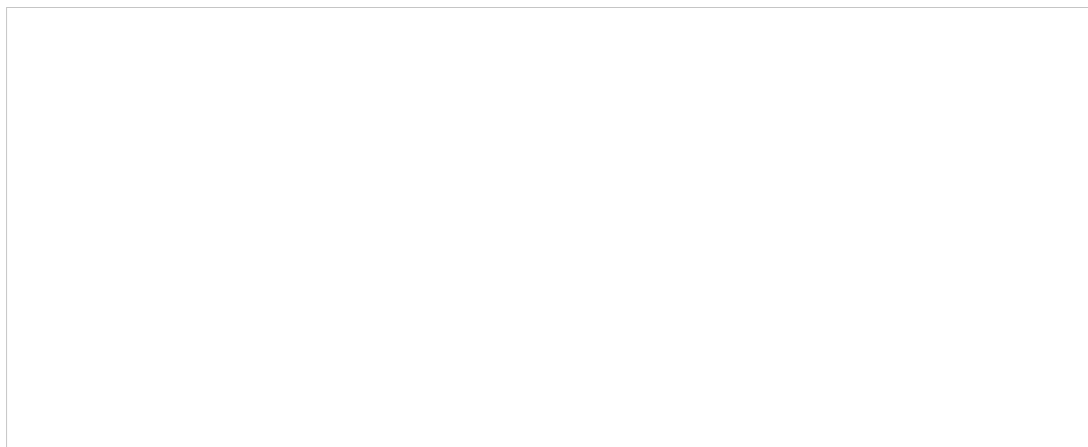
Hydrogen

Oxygen

Nitrogen

Electronegativity:

- Which element would you expect to have a higher EN, Nitrogen or Fluorine?
- Which element would you expect to have a lower EN Oxygen or Carbon?
- Which two elements have the most similar ENs compared to Hydrogen?
- Rank the following 4 biological molecules from highest to lowest EN using the rules given and the periodic table? Hydrogen, Oxygen, Nitrogen, Carbon
- From a physical perspective. What properties of elements towards the right of the periodic table (within a row/period) make them more electronegative?
- From a physical perspective, what properties of elements toward the top of the periodic table (within a column/group) make them more electronegative?



Methods of Evaluation

- Essay/Paper
 - Exams
 - Homework
 - Laboratory Assignments
 - Oral Tests/Class Performance
 - Participation
 - Quizzes
 - Skills Demonstrations/Performance Exam
-

Course Materials

Textbooks:

1. Martha R. Taylor, Eric J. Simon, Jean L. Dickey, Kelly A. Hogan, Jane B. Reece. *Campbell Biology: Concepts & Connections*, Current (9th edition) ed. Pearson, 2017, ISBN: 978-0134296012
Equivalent text is acceptable
2. Colleen Belk, Virginia Borden Maier. *Biology: Science for Life*, Current (5th Edition) ed. Pearson, 2019, ISBN: 978-0133892307
Equivalent text is acceptable

Manuals:

1. Ramones. *Biology 10L Laboratory Supplement*, 5th Edition ed. Yuba College, 2013, ISBN: None
Equivalent text is acceptable
-

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: BIOL 24
Full Course Title: Human Biology
Short Title: Human Biology
TOP Code: 0401.00 - Biology/Biological Sciences, General
Effective Term: Fall 2009

Course Standards

Course Type: Credit - Degree Applicable
Units: 3.0
Total class hours: 162.0
 Total contact hours in class: 54.0
 Lecture hours: 54.0
 Hours outside of class: 108.0
Repeatable: No
Grading Method: Letter Grade Only

Minimum Qualifications for Instructors

- Biological Sciences (Masters Required)
-

Course Description

An introduction to general biology of human beings. Emphasis is placed on the concepts, mechanisms and terminology used in anatomy, physiology and ecology. Topics include cell structure and function, human evolution, anatomy and physiology of the organ systems, genetics, and the human impact on the environment.

Conditions of Enrollment

Advisories

- Language - recommended eligibility for English 1A
-

Content

Course Lecture Content

Students will be required to analyze, evaluate and compare the following concepts and processes. Instructors may opt to alter the sequence in which these topics are presented.

1. Homeostasis
 - a. Homeostasis: maintaining a constant internal environment
 - b. Cell components and function
 - c. Musculoskeletal system: locomotion
 - d. Cardiovascular system: internal transport system

- e. Respiratory system: movement of oxygen and carbon dioxide
- f. Digestive system: nutrition
- g. Excretory system: its role in homeostasis of blood chemistry and removal of waste
- h. Nervous and endocrine systems: control and coordination
- i. Reproductive systems and development: continuation of the species
- j. Immunity: defense against pathogenic agents
- 2. Human Evolution
 - a. Introduce principles of evolution
 - b. Correlate lines of evidence with current theories of human evolution
- 3. Human Genetics
 - a. DNA: structure and function
 - b. Cell replication: mitosis vs. meiosis
 - c. Basic genetic concepts
 - d. Genetics and the inheritance of human characteristics
 - e. Genetics/evolution: how are they linked?
 - f. Current topics in genetics
- 4. Humans and the Environment
 - a. The concept of the ecosystem
 - b. Human population patterns
 - c. Energy: resources and use patterns
 - d. Renewable and non-renewable resources
 - e. Possible solutions
- 5. Science, Ethics and Controversies
 - a. Biotechnology
 - b. Environmental issues
 - c. Cloning and stem cells

Objectives

1. Describe the structural hierarchy of the human body and name the general anatomy at each level.
2. Define and analyze the concept of homeostasis and apply it to a description of normal body function.
3. Explain the phylogenetic lineage of primates and evaluate current theories of human evolution.
4. Explain the fundamentals of human genetics and be able to apply them to evolution, biotechnology, cancer, and other relevant topics.
5. Analyze the impact humans have on their environment and evaluate potential solutions to environmental problems.
6. List and define the unifying characteristics humans share with all living organisms. ****Requires Critical Thinking****
7. Describe the scientific method and describe how it is applied in science, technology, and society. ****Requires Critical Thinking****
8. Compare and contrast physiological mechanisms in different body systems. ****Requires Critical Thinking****
9. Identify and describe interrelationships between anatomy and physiology of humans. ****Requires Critical Thinking****
10. Identify and describe interrelationships between humans and their environment. ****Requires Critical Thinking****
11. Analyze causes and preventions of ecological diseases (skin cancer, malaria, Lyme disease) based on physiological and anatomical principles. ****Requires Critical Thinking****

Student Learning Outcomes

1. Upon completion of this course, students will be able to identify and illustrate the structures of a typical Eukaryotic cell, and explain their function.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
 2. Upon completion of this course, students will be able to illustrate and/or label images of a human organ or anatomical feature from multiple organ systems.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
 3. Upon completion of this course, students will be able to describe common genetic inheritance patterns such as monohybrid and dihybrid crosses to calculate genotypic/phenotypic allele frequencies. Students will be able to relate these inheritance patterns to the movement of chromosomes during meiosis.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
-

Methods of Instruction

- Lecture/Discussion
-

Distance Education

Delivery Methods

- Online
-

Assignments

Reading Assignments

Module #1: Assessment #2 Vocabulary Quiz

Instructions

The following quiz is a series of vocabulary matching terms (approximately 15). The terms describe the levels of the biological hierarchy as well as the characteristics of life. Please match the term to its best definition. The instructor notes, as well as chapter #1 will be useful in answering these questions. The quiz is timed, just 10 minutes, but you may take it repeatedly. Your MOST RECENT score will be saved. It may help to have your annotated instructor notes available.

Details

Time Estimate: 10 minutes to complete the quiz.

Learning Outcomes:

1-1: Describe/explain the shared characteristics of all life

1-2: Define the levels of the biological hierarchy from atoms to the biosphere

Question Type: Matching

Example: The image below shows an example of the most common question type you will see when you begin the quiz. It is not an actual question in the quiz.



Grading Rubric:

Exceptional 90% and above

Above average 80% and above

Average 70% and above


Below Average 60% and above

Failing 50% and above.

Writing Assignments

Module #2: Assessment #4 Drawing Biological Molecules

Instructions

For this assignment you will use the provided [Module #2 Drawing Biological Molecules Template](#)  to draw specific Biological molecules. Your objective is to draw each portion of the molecules described on the provided template (or on a blank piece of paper). Once you have completed the drawings, sign your paper and submit a photo or scan of your drawings to Canvas using this assignment page. This assignment is worth 4

points. Please refer to the instructions on the PDF, to complete the assignment. If you have any questions please message me via Canvas.

Details

Time Estimate: 15 minutes to complete the drawings.

Question Type: Draw, photograph, submit.

Learning Outcomes:

2-5: Describe the 4 major classes of biological molecules, understand their general characteristics, and draw any repetitive monomers that exist within each class.

Example: Below is an example for a drawing assignment by a student. The student photographed their page, and submitted via the assignment page as a jpeg file. The student received full credit for this submission.



Grading Rubric:

Exceptional detail in drawing, and correct images of requested items (possibly colored) = 100%

Above average detail in drawing, minor mistakes to images of requested items = 75%

Average detail in drawing, major mistakes to images, but complete and readable = 50%

Below Average details in drawing, major mistakes to images and potentially incomplete = 25%

Incomplete or missing drawing or activity not submitted = 0%

Methods of Evaluation

- Essay/Paper
- Exams
- Homework
- Participation
- Problem Solving Exercises
- Quizzes

Course Materials

Textbooks:

1. Mader, Sylvia. *Human Biology*, 15th edition ed. Mcgraw Hill, 2017, ISBN: 978-1259933707

Other:

1. or equivalent

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: BIOL 30

Full Course Title: Emerging Infections and the History of Infectious Disease

Short Title: Infectious Disease

TOP Code: -

Effective Term:

Course Standards

Course Type: Credit - Degree Applicable

Units: 3.0

Total class hours: 162.0

Total contact hours in class: 54.0

Lecture hours: 54.0

Hours outside of class: 108.0

Repeatable: No

Grading Method: Letter Grade Only

Minimum Qualifications for Instructors

- Biological Sciences (Masters Required)
-

Course Description

Designed for non-science majors. This course examines current biological threats to societies including emerging and re-emerging diseases (such as AIDS and avian flu) and the release of infectious bio-agents either by terrorists or military organizations. We will also discuss these threats in a historical context by reviewing diseases that have had significant effects on human societies (such as smallpox and polio). The biology of infectious disease and treatment will be covered.

Conditions of Enrollment

Advisories

- **Computer Literacy - recommended basic computer skills**
-

Content

Course Lecture Content

I. Introduction to cell and molecular biology

 A. basic cell structure

 B. metabolism as needed for topics covered

II. Overview of bacteria

- A. bacterial structure
- B. bacterial reproduction
- C. endospores (anthrax)

III. Overview of viruses

- A. viral structure
- B. viral reproduction

IV. Introduction to the infectious diseases process

- A. transmission and entry of pathogens
- B. pathogenesis
- C. types of toxins

V. How the human immune system responds to infections

- A. innate immunity
- B. specific immunity

VI. History of the germ theory of disease- applying the scientific method

- A. Jenner and vaccination
- B. Semmelweis and hand washing
- C. Pasteur and sick wine
- D. Koch's postulates
- E. chemotherapeutic agents
- F. discovery of antibiotics

VII. Survey of infectious diseases that have changed human societies in a historical content

- A. smallpox
- B. plague
- C. tuberculosis
- D. polio

VIII. Survey of current emerging infectious diseases

- A. influenza
 - 1. seasonal epidemics
 - 2. pandemics
 - 3. avian flu
- B. AIDS
- C. Ebola

- D. West Nile Virus
- E. MRSA and antibiotic resistant bacteria
- F. *E. coli* 0157:H7
- G. prions (BSE)
- IX. How modern societies influence the emergence of new infectious diseases
 - A. overpopulation (crowd diseases)
 - B. virgin territory
 - C. rapid travel
 - D. food production
 - E. over-use of antibiotics
- X. Biotechnology in the detection and treatment of new infectious diseases
 - A. rapid screening for diagnosis
 - B. antibody based tests
 - C. Western blotting
 - D. PCR testing
- XI. New treatments
 - A. phage therapy
 - B. new antivirals
 - C. new vaccines
- XII. Biotechnology in the development of biological weapons
 - A. history of biological warfare
 - 1. the U.S program
 - 2. the Russian program
 - B. what genetic engineering can do
- XIII. Current topics and issues regarding infectious diseases used in bio-terrorism/warfare
 - A. anthrax mailings
 - B. smallpox danger
- XIV. Current concerns regarding infectious diseases in the health care field
 - A. overcoming antibiotic resistance
 - B. early surveillance

Objectives

1. Describe the infectious diseases process as pathogens invade the human body. ****Requires Critical Thinking****
 2. Demonstrate an understanding of the scientific method as used to discover the causes of infectious diseases. ****Requires Critical Thinking****
 3. Summarize the specific pathways of entry, symptoms, and treatments of emerging infectious diseases such as AIDS, avian flu, ebola, and mad cow disease, and discuss the current concerns regarding emerging infectious diseases. ****Requires Critical Thinking****
 4. Summarize the specific pathways of entry, symptoms, and treatments of infectious diseases such as tuberculosis, smallpox, anthrax, and plague, and discuss the current concerns regarding these classic infectious diseases. ****Requires Critical Thinking****
-

Student Learning Outcomes

1. Upon completion of this course, students will be able to explain the dynamics of commensal, mutualistic, opportunistic, and pathogenic relationships between humans and microbes. This includes understanding the details of the infectious disease process. Describe the bacterial structures that are critical for their roles in infectious disease.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
2. Upon completion of this course, students will be able to describe and discuss the history of emerging and re-emerging diseases such as AIDS and avian flu, such as smallpox and polio. Describe the biology of infectious disease and treatment.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Global Awareness** Students will articulate similarities and differences among cultures, times, and environments, demonstrating an understanding of cultural pluralism and knowledge of global issues.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
3. Upon completion of this course, students will be able to demonstrate an understanding of the scientific method as applied to discover the causes of infectious diseases.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Global Awareness** Students will articulate similarities and differences among cultures, times, and environments, demonstrating an understanding of cultural pluralism and knowledge of global issues.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
4. Upon completion of this course, students will be able to list a number of globally significant infectious diseases and be able to explain how they impact mortality and the societal effects of infectious diseases.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Global Awareness** Students will articulate similarities and differences among cultures, times, and environments, demonstrating an understanding of cultural pluralism and knowledge of global issues.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.

5. Upon completion of this course, students will be able to define and learn the terminology used to discuss and describe emerging infectious diseases (EIDs): hosts, reservoirs, vectors, accidental hosts, dead-end hosts, viral chatter, micro- and macroparasites.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Global Awareness** Students will articulate similarities and differences among cultures, times, and environments, demonstrating an understanding of cultural pluralism and knowledge of global issues.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
6. Upon completion of this course, students will be able to describe the viral structures that are critical for their roles in infectious disease.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Global Awareness** Students will articulate similarities and differences among cultures, times, and environments, demonstrating an understanding of cultural pluralism and knowledge of global issues.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.
7. Upon completion of this course, students will be able to describe the direct and indirect transmission cycles for several emerging infectious diseases of concern and several aspects of their in-host immunological and cellular biology.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - **Global Awareness** Students will articulate similarities and differences among cultures, times, and environments, demonstrating an understanding of cultural pluralism and knowledge of global issues.
 - **Scientific Awareness** Students will understand the purpose of scientific inquiry and the implications and applications of basic scientific principles.

Methods of Instruction

- **Lecture/Discussion**

The instructor may lecture using PowerPoint slides, the whiteboard and markers, and other tools. The instructor may choose to incorporate activities into lectures such as group worksheets or review games. The instructor may choose to engage students in a discussion of environmental issues and/or environmental science news articles during class.

Distance Education

Delivery Methods

- Online

Assignments

Reading Assignments

Complete the worksheet for Unit 1.3 bacterial structure worksheet. Read chapter 6 in preparation for a quiz-
Writing Assignments
during lesson 6.

Your paper should be at least 700 words excluding the Works Cited page. You must cite at least three credible sources both within the text and at the end of the paper using MLA style, 8th ed. Limit your use of quotations to less than 5% of the words in your paper. If you can only find one source about your innovation, consider discussing multiple related innovations. Another option is to reference sources about environmental issue that the innovation addresses or the scientific principles applied to its development.

In pairs, sign up for a discussion date and topic on Canvas. Choose one or more articles relating to the topic, and email it to me two weeks before your discussion date. See Canvas for suggested sources for these articles. Once I approve the article, I will post it on Canvas for your classmates to read. You can also choose one or more relevant book chapters. Your selections should be at least 1000 words (about four pages).

Prepare by considering the following:

- Summarize the readings in a few sentences. What were the most interesting/important points? How does the reading relate to recent lecture topics?
- Research any topics/terms in the chapter or article with which you are unfamiliar or find especially interesting. Locate at least two pieces of supplemental information to share with your classmates during the discussion. Use only credible sources.
- Prepare three questions for the class. Write open-ended questions that encourage discussion rather than simply quizzing your classmate on the content.

Other Assignments

The students will watch the movie "Contagion" in class and have this homework assignment: Homework Questions: For discussion after the movie: Due next week.

1. During the movie pay attention to the depiction of possible "fomites" that can facilitate transmission of the virus. Make a list.
2. Why does the movie start on "Day Two"?
3. What is the term **RO** (pronounced "R-not") mean.
4. How does **RO** for the virus change during the outbreak.
5. What is the death rate for the virus? (percentage of people who die)_____
6. What is the name of the new virus that is causing the outbreak?_____
7. What does the name stand for?_____
8. How is the vaccine administered?
9. Where did the virus cross-over into the human population?_____
10. How did the virus "cross-over" into the human species?
10. Given what you know about the immune system does it seem plausible that Dr. Hextall, who injects herself with the experimental vaccine, could be protected from infection by visiting her sick father the very next day? Explain why or why not.

Methods of Evaluation

- Essay/Paper
 - Exams
 - Homework
 - Participation
 - Problem Solving Exercises
 - Quizzes
 - Research Project
-

Course Materials

Textbooks:

1. Krasner, Robert. *The Microbial Challenge: Science, Disease and Public Health*, 2 ed. ASM Press, 2009, ISBN: 076375689X
Equivalent text is acceptable
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ENVIRONMENTAL SCIENCE

ASSOCIATE IN SCIENCE FOR TRANSFER

Description

The Associate in Science degree in Environmental Science for Transfer (AS-T) is intended to provide students with the first two years of core curriculum leading to a bachelor's degree in Environmental Science at a California State University. This interdisciplinary field focuses on how humans interact with their surroundings. Careers in environmental science include conducting research or advising policy at government agencies (such as the National Park Service or Environmental Protection Agency), environmental consulting, or conducting health inspections.

To earn this AS-T degree, students must meet the following Associate in Science Degree for Transfer requirements (pursuant to SB 1440 law):

1. Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University.
2. The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education Breadth Requirements.
3. A minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district.
4. Obtainment of a minimum grade point average of 2.0.
5. Earn a grade of "C" or better in all courses required for the major or area of emphasis.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Demonstrate an understanding of topics revolving around the interactions between humans and their environment. This could be illustrated by knowledge of species interactions, natural cycles, environmental issues, or other topics.
2. Apply the scientific method by creating or assessing hypotheses, conducting experiments, correctly analyzing and interpreting data, and effectively communicating findings.
3. Practice decision making and problem solving by applying existing scientific research to environmental issues.

Program Requirements:

Required Core

		Course Block Units: (25 Required)
BIOL1	Principles of Biology	5
CHEM1A	General Chemistry	5
CHEM1B	General Chemistry	5
ECOL10	Environment-Concepts and Issues	3
ECON1B	Elementary Economics-Micro	3
GEOL10L	Physical Geology	4

Select one Calculus course from the following:

		Course Block Units: (4 Required)
MATH1A	Single Variable Calculus I -- Early Transcendentals	4

MATH9	Calculus for Business, Social and Life Sciences	4
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Select one 8-unit Physics series (trigonometry-based or calculus-based) from the following:

Course Block Units: (8 Required)

General Physics Series

PHYS2A and	General Physics I	3
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PHYS3A and	General Physics Laboratory I	1
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PHYS2B and	General Physics II	3
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PHYS3B	General Physics Laboratory II	1
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Or Mechanics and Electromagnetism Series

PHYS4A and	Mechanics	4
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PHYS4B	Electromagnetism	4
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Select one Statistics course from the following:

Course Block Units: (4 Required)

PSYCH6	Introduction to Statistics in Social and Behavioral Science	4
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STAT1	Introduction To Statistical Methods	4
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Total: 41

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ENGLISH

ASSOCIATE IN ARTS FOR TRANSFER

Description

The Associate in Arts in English for Transfer degree gives students a broad based background in writing, literature, and language analysis. It prepares students for the further study of English or a related field at a four-year school. As such, a bachelor's degree in English is a good gateway towards a career in teaching, law, technical writing, creative writing, editing/publishing, marketing, and any occupation requiring clear communication skills.

The Associate in Arts in English for Transfer specifically provides a clearly articulated curricular track for students who wish to transfer to a California State University campus, while also serving the diverse needs of students interested in the breadth and depth of the field of English. This degree also exposes students to the core principles and practices of the field in order to build a foundation for their future personal or academic paths.

In addition to the major requirements, students seeking an Associate in Arts in English for Transfer degree (AA-T in English), students must also complete the following to comply with SB 1440 law:

- 60 semester CSU-transferable units.
- The California State University-General Education Breadth Pattern (CSU GE-Breadth); or the Intersegmental General Education Transfer Curriculum (IGETC) pattern.
- A minimum of 18 semester units in the major area of emphasis.
- 2.0 GPA.
- Earn a grade of "C" or better in all courses required for the major or area of emphasis.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Analyze the effects of their rhetorical choices.
2. Critically analyze a variety of texts.
3. Demonstrate proficiency in the academic writing process.
4. Explain the relevance of literary expression.
5. Analyze and interpret literary works with respect to their historical, cultural, and sociopolitical contexts.

Program Requirements:

Required Courses (6 units)

ENGL1B and	Critical Thinking & Writing About Literature	3
ENGL1C	Critical Thinking/Advanced Composition	3

Course Block Units: (6 Required)

List A (6 units: choose 2)

ENGL30A or	Introduction To American Literature, I	3
ENGL30B or	Introduction To American Literature, II	3
ENGL46A or	Introduction To English Literature, I	3
ENGL46B or	Introduction To English Literature II	3

Course Block Units: (6 Required)

List B (3 units: choose 1)

Course Block Units: (3 Required)

ENGL31A or	Creative Writing	3
ENGL36 or	American Ethnic Voices	3
ENGL37 or	Women's Voices	3
ENGL42 or	Introduction To Shakespeare	3

List C (3 units: choose 1)

Course Block Units: (3 Required)

SPECH2 or	Oral Interpretation of Literature	3
ENGL19 or	News Writing and Reporting	3
MCOMM19 or	News Writing and Reporting	3
ENGL34 or	Introduction To Film	3
HUMAN34 or	Introduction To Film	3
THART34	Introduction To Film	3

Total: 18

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MATHEMATICS

ASSOCIATE IN SCIENCE

Description

The Associate in Science in Mathematics degree is designed for students who are interested in transferring to a college or university to major in mathematics, engineering, the physical or life sciences, business, liberal studies, and a host of other majors. The AS in Mathematics requires the core freshman and sophomore mathematics courses for a baccalaureate degree in mathematics plus an additional mathematics or statistics course for breadth.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Solve equations and inequalities
2. Perform operations on mathematical objects (e.g. numbers, expressions, functions, matrices)
3. Graph equations, functions, and inequalities
4. Solve applied problems using mathematical or statistical methods
5. Prove identities and theorems
6. Apply definitions, notation and properties of mathematical concepts

Program Requirements:

Required Courses		Course Block Units: (21 - 22 Required)
MATH1A	Single Variable Calculus I -- Early Transcendentals	4
MATH1B	Single Variable Calculus II -- Early Transcendentals	4
MATH1C and MATH3	Multivariable Calculus	4
MATH3	Linear Algebra	3
MATH25 or STAT1 or MATH10 or MATH51	Finite Mathematics	3
STAT1 or MATH10 or MATH51	Introduction To Statistical Methods	4
MATH10 or MATH51	Liberal Arts Mathematics	3
MATH51	Plane Geometry	3
MATH55 or	History of Algebra	3
		Total: 21.00 - 22.00

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Yuba Community College District

Yuba College Course Outline

Course Information

Course Number: STAT 1X
Full Course Title: Introduction to Statistical Methods with Support
Short Title: Stats with Support
TOP Code: -
Effective Term:

Course Standards

Course Type: Credit - Degree Applicable
Units: 5.0
Total class hours: 270.0
 Total contact hours in class: 126.0
 Lecture hours: 72.0
 Lab hours: 54.0
 Hours outside of class: 144.0
Repeatable: No
Grading Method: Letter Grade or Pass/No Pass

Minimum Qualifications for Instructors

- Mathematics (Masters Required)
-

Course Description

An introduction to statistical methods including a review of prerequisite skills, competencies, and concepts needed in statistics. The use of probability techniques, hypothesis testing, and predictive techniques to facilitate decision-making. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance, chi-square and t-tests; and application of technology for statistical analysis including the interpretation of the relevance of the statistical findings. Applications using data from disciplines including business, social sciences, psychology, life science, health science, and education.

Conditions of Enrollment

Satisfactory completion of: MATH 52

Content

Course Lecture Content

1. Descriptive Statistics
2. Sampling and Sampling Distributions
3. Probability
4. Binomial Distribution, Normal Distribution, and t-Distribution
5. Inferences - Estimation and Hypothesis Testing
6. Regression and Correlation

7. ANOVA
8. Chi-square Test

Course Lab/Activity Content

1. Statistical analysis using Minitab or equivalent software
 - a. Descriptive Statistics
 - b. Sampling and Sampling Distributions
 - c. Probability
 - d. Binomial Distribution, Normal Distribution, and t-Distribution
 - e. Inferences - Estimation and Hypothesis Testing
 - f. Regression and Correlation
 - g. ANOVA
 - h. Chi-square Tests
 2. Just-in-time algebra review in the context of statistics
 - a. Arithmetic review
 - b. Solving equations and inequalities
 - c. Cartesian coordinate system
 - d. Scientific notation
 - e. Sigma notation
 - f. Mathematical modeling
 3. Effective learning skills
-

Objectives

1. Interpret data displayed in tables and graphically ****Requires Critical Thinking****
2. Apply concepts of sample space and probability ****Requires Critical Thinking****
3. Calculate measures of central tendency and variation for a given data set
4. Identify the standard methods of obtaining data and identify advantages and disadvantages of each ****Requires Critical Thinking****
5. Calculate the mean and variance of a discrete distribution
6. Calculate probabilities using normal and student's t-distributions
7. Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem ****Requires Critical Thinking****
8. Construct and interpret confidence intervals ****Requires Critical Thinking****
9. Determine and interpret levels of statistical significance including p-values ****Requires Critical Thinking****
10. Interpret the output of a technology-based statistical analysis ****Requires Critical Thinking****
11. Identify the basic concept of hypothesis testing including Type I and II errors ****Requires Critical Thinking****
12. Formulate hypothesis tests involving samples from one and two populations ****Requires Critical Thinking****
13. Select the appropriate technique for testing a hypothesis and interpret the result ****Requires Critical Thinking****
14. Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics ****Requires Critical Thinking****

15. Use appropriate statistical techniques to analyze and interpret applications based on data from disciplines including business, social sciences, psychology, life science, health science, and education ****Requires Critical Thinking****
 16. Use technology to summarize data graphically and numerically
 17. Use technology to generate Monte Carlo simulation of random phenomena and interpret the results ****Requires Critical Thinking****
 18. Use technology to test hypotheses and interpret the results ****Requires Critical Thinking****
 19. Use technology to calculate probabilities including binomial probabilities and normal probabilities
 20. Solve equations and inequalities in the context of statistics ****Requires Critical Thinking****
 21. Identify the slope of a linear equation and interpret the slope as a rate of change ****Requires Critical Thinking****
 22. Graph linear equations in the Cartesian plane
 23. Translate between standard notation and scientific notation
 24. Evaluate sums expressed in sigma notation
 25. Solve application problems ****Requires Critical Thinking****
 26. Consistently apply effective learning strategies for success in college
-

Student Learning Outcomes

1. Upon completion of this course, the student should be able to calculate and interpret measures of center and measures of dispersion for given data.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Computation** Students will use appropriate mathematical concepts and methods to understand, analyze, and communicate issues in quantitative terms.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
2. Upon completion of this course, the student should be able to find probabilities for applications involving normal random variables.
 - **Computation** Students will use appropriate mathematical concepts and methods to understand, analyze, and communicate issues in quantitative terms.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
3. Upon completion of this course, the student should be able to construct and interpret a confidence interval for a population mean or proportion.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Computation** Students will use appropriate mathematical concepts and methods to understand, analyze, and communicate issues in quantitative terms.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
4. Upon completion of this course, the student should be able to formulate decisions about rejection or failures to reject hypotheses based on data/information provided.
 - **Communication** Students will effectively use language and non-verbal communication consistent with and appropriate for the audience and purpose.
 - **Computation** Students will use appropriate mathematical concepts and methods to understand, analyze, and communicate issues in quantitative terms.

- **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - 5. Upon completion of this course, the student should be able to apply numerical and algebraic reasoning to support statistical analysis.
 - **Computation** Students will use appropriate mathematical concepts and methods to understand, analyze, and communicate issues in quantitative terms.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
 - 6. Upon completion of this course, the student should be able to construct, use, and interpret linear models to represent relationships in quantitative data.
 - **Computation** Students will use appropriate mathematical concepts and methods to understand, analyze, and communicate issues in quantitative terms.
 - **Critical Thinking** Students will analyze data/information in addressing and evaluating problems and issues in making decisions.
-

Methods of Instruction

- Laboratory
 - Lecture/Discussion
-

Assignments

Other Assignments

Example homework assignment

From the Sullivan Text -

Section 5.2: 5-12, 25, 31, 34, 35, 41, 45

Example lab assignment

1. Use MINITAB to simulate rolling one die 600 times. Make a histogram of the results and find the mean of the 600 rolls. Mark the mean on the histogram.
 2. Use MINITAB to simulate rolling two dice 600 times. Find the mean of each roll. Make a histogram of the means and find the mean of the 600 means. Mark the mean on the histogram.
 3. Use MINITAB to simulate rolling five dice 600 times. Find the mean of each roll. Make a histogram of the means and find the mean of the 600 means. Mark the mean on the histogram.
 4. Report on the similarities and differences of the results you obtained. Refer to average, spread, and shape.
-

Methods of Evaluation

- Exams
 - Homework
 - Laboratory Assignments
 - Participation
 - Problem Solving Exercises
 - Quizzes
-

Course Materials

Textbooks:

1. Michael Sullivan III. *Statistics: Informed Decisions Using Data*, 6th ed. Pearson, 2019, ISBN:

AGRICULTURE TECHNOLOGY

ASSOCIATE IN SCIENCE

Description

The degree in Agriculture Technology prepares students for positions that require the use of current technology in Agriculture. Students will learn real world application for GPS/GIS, precision farming equipment, drones and related data collection software. Additionally students will explore fundamental agronomic relationships between land and livestock and integrate those with advanced agriculture technology. These students will also recognize how agriculture technology applications positively impact the economic stability of agriculture enterprises.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Upon completion of this degree, students will be able to identify applicable practices that reduce the impact of agriculture on natural ecosystems.
2. Upon completion of this degree, students will be able to demonstrate basic skills used in day to day precision farming operations such as global positioning systems, data collection software and unmanned aerial vehicles.
3. Upon completion of this degree, students will be able to employ methods utilizing advanced agriculture technology to allow for a more profitable, efficient and safer agriculture enterprise.
4. Upon completion of this degree, students will be able to model those attributes necessary for gainful employment in the field of agriculture technology.

Program Requirements:

Required Courses		Course Block Units: (28 Required)
AG4	Introduction to Agricultural Business	3
AG14	Entrepreneurship	3
AG45	Principles of Animal Science	3
AG60	Preparing for 21st Century Agricultural Workforce	3
AG65	Introduction to Agriculture Technology	3
AG70	Precision Farming Systems	3
PLSCI20	Principles of Plant Science	3
PLSCI22	Introduction To Soils	3
GNBUS30	Business Computer Applications	3
CWEE45A or	Occupational Work Experience-Volunteer	1
CWEE45B	Occupational Work Experience-Paid	1

Total: 28

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AGRICULTURE

ASSOCIATE IN SCIENCE

Description

Career opportunities in agriculture and plant science are many and varied. They include jobs in the food, fiber, and nursery industries; jobs in air, land, water, and natural resources; as well as jobs in veterinary technology, environmental regulation and protection; biotechnology; accounting, and farm management. Students planning to transfer need to see a counselor to ensure they are taking the correct courses.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Identify and apply the principles and techniques of modern crop, soil, and livestock management.
 2. Demonstrate scientific evaluation skills including interpreting graphs/data, as well as be proficient in laboratory procedures.
 3. Describe fundamental practices in agriculture for livestock, crops, and soil health and sustainability.
-

Program Requirements:

Required Courses

Course Block Units: (18 Required)

AG7	Agricultural Entrepreneurship	3
AG45	Principles of Animal Science	3
AG45L	Principles of Animal Science Lab	1
PLSCI20	Principles of Plant Science	3
PLSCI20L	Principles of Plant Science Lab	1
PLSCI22	Introduction To Soils	3
PLSCI22L	Introduction To Soils Lab	1
ENVHR11	Irrigation Design and Installation	3

Plus 12 units from the following:

Course Block Units: (12 Required)

GNBUS30	Business Computer Applications	3
ACCT10A	General Accounting	4
VETT91	Veterinary Assisting	3
VETT8	Large Animal Care and Nursing	3
VETT18	Food Safety and Security	3
AG60	Preparing for 21st Century Agricultural Workforce	3
INTRN46	Internship	1 - 8
CWEE45A	Occupational Work Experience-Volunteer	1 - 4
CWEE45B	Occupational Work Experience-Paid	1 - 4

Total: 30

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