

## 2020 COLLEGE CATALOG ADDENDUM

### ACADEMIC CALENDAR

The Academic Calendar on Page 5 has been revised as outlined below:

| Spring Mid-Session     |                                   |
|------------------------|-----------------------------------|
| Friday, March 6, 2020  | New Students Orientation          |
| Monday, March 9, 2020  | First Day of Classes              |
| Sunday, March 15, 2020 | Last Day to Add/Drop Classes      |
| Sunday, April 12, 2020 | Last Day to Withdraw from Classes |
| Sunday, May 3, 2020    | Last Day of Classes               |

| Summer Trimester        |   |
|-------------------------|---|
| Friday, May 22, 2020    | New Students Orientation                    |
| Tuesday, May 26, 2020   | First Day of Classes                        |
| Monday, June 1, 2020    | Last Day to Add/Drop Classes                |
| Monday, May 25, 2020    | Memorial Day (Holiday) - College Closed     |
| Friday, July 3, 2020    | Independence Day (Holiday) - College Closed |
| Sunday, July 26, 2020   | Last Day to Withdraw from Classes           |
| Sunday, August 30, 2020 | Last Day of Classes                         |

### ACADEMIC PROGRAMS

#### GRADUATE CERTIFICATE IN PROJECT MANAGEMENT IN CREATIVE TECHNOLOGIES

The Graduate Certificate in Project Management in Creative Technologies program provides professionals in many fields with a thorough understanding of management principles and the skills necessary to guide projects from start to finish. The program includes industry-standard curricula on project management, as well as leadership, management and fundamentals of business in creative and technical industries. Students have the opportunity to develop further skills in business and risk analysis. Graduates of this program are also well-positioned to transfer into one of our Master's degrees in Business, and to flourish in the innovative hub of business in Silicon Valley.

#### LEARNING OUTCOMES

Upon completion of the Graduate Certificate in Project Management in creative Technologies program, students will be able to:

- **ENT PLO 1:** Demonstrate business acumen in a variety of professional contexts, including planning, decision-making, resource-allocation and leadership.
- **ENT PLO 2:** Demonstrate a well-developed understanding of project management terminology, practices and methodologies.
- **ENT PLO 3:** Gather, analyze, communicate, and apply diverse information in a business environment.

| Graduate Certificate in Project Management of Creative Industries |   |         |
|---|---|---------|
| Core Courses  |   |         |
| Course Number   | Course Name                                       | Credits |
| ENT570  | Project Portfolio Management                      | 3       |
| CLT511  | Understanding the Business of Creative Industries | 3       |
| BUS510  | Business Analysis                                 | 3       |
| Electives - 6 credits (select one)                                |   |         |
| BUS520  | Risk Analysis and Management                      | 3       |
| ENT555  | Leadership and Management                         | 3       |
| Total 12 Credits  |   |         |

## ACADEMIC HONORS

The Academic Honors requirements on Page 39 have been revised as outlined below:

### THE PRESIDENT’S HONOR ROLL

The President’s Honor Roll recognizes undergraduate students who have completed twelve (12) or more credits of coursework during the term with a 3.80 grade point average or better.

### THE DEAN’S HONOR ROLL

The Dean’s Honor Roll recognizes undergraduate students who have completed twelve (12) or more credits of coursework in a term with a 3.50-3.79 grade point average.

## CONDITIONAL ADMISSIONS

The Conditional Admissions requirements on Pages 10 and 11 have been removed.

## INSTITUTIONAL SCHOLARSHIPS AND GRANTS

The Institutional Scholarships and Grants listed on Page 27 have been revised as outlined below:

|   |                |  |
|---|----------------|--|
| Educators' Grant                                      | 50% of tuition | The Educators’ Grant is for current educators and education administrators who want to continue with graduate coursework. Candidates must be a current primary, secondary, or postsecondary teacher or administrator and enrolled in the MA in Entrepreneurship and Innovation degree program. Candidates must have completed an undergraduate degree program at an accredited college or university. Eligible students have the opportunity to receive 50% tuition scholarships. Students must be enrolled with full-time status of 6+ credits per term and maintain a GPA of 3.0 or higher. To qualify, applications must be submitted with proof of educator or administrator status (i.e. letter from school on official letterhead that verifies position/status).                    |
| Business Partnership Training Grant                   | 50% of tuition | This Business Partnership Training Grant is for current employees of companies that have a business partnership with Cogswell who want to continue with graduate education. Candidates must be an employee in good standing with a Cogswell business partner and enrolled in the MA in Entrepreneurship and Innovation degree program. Candidates must have completed an undergraduate degree program at an accredited college or university. Eligible students have the opportunity to receive 50% tuition scholarships. Students must be enrolled with full-time status of 6+ credits per term and maintain a GPA of 3.0 or higher. To qualify, applications must be submitted with verification status (i.e. letter from company on official letterhead that verifies position/status). |
| Business, Entrepreneurship and Innovation Scholarship | 10% of tuition | This scholarship program is designed to provide tuition assistance to students who are seeking careers as entrepreneurial innovators in business and are enrolled one of our Master's Degree programs. Candidates must have completed an undergraduate degree program at an accredited college or university. Eligible students have the opportunity to receive 10% tuition scholarships. Must be enrolled with full-time status of 6+ credits per term and maintain a GPA of 3.0 or higher.   |
| CEO Leadership of Tomorrow Scholarship                | 25% of tuition | The CEO of Cogswell College awards scholarships annually to qualified candidates who are alumni of the college and demonstrate an interested in business leadership. This scholarship program is designed to provide tuition assistance to students who are enrolled one of our Master's Degree programs. Eligible recipients will be selected in order of merit with preference given to applicants who have completed an undergraduate degree program at Cogswell Polytechnical College. Eligible students have the opportunity to receive 25% tuition scholarships. Must be enrolled with full-time status of 6+ credits per term and maintain a GPA of 3.0 or higher.  |

## TUITION AND FEES

Effective 01/06/2020: The Student Housing Application Fee on Page 19 is a one-time fee of \$300.

The Tuition and Fees on Page 19 have been revised as outlined below:

| Tuition and Fees (Effective: Fall 2020)         |         |   |
|---|---------|---|
| <b>Undergraduate Tuition</b> (per credit hour): | \$866   | Refundable According to the Institutional Refund Policy |
| <b>Graduate Tuition</b> (per credit hour):      | \$499   | Refundable According to the Institutional Refund Policy |
| <b>Fees</b> (per term):                         |         |   |
| Campus Fee (Undergraduate Students):            | \$500   | Non-refundable  |
| Technology Fee (Graduate Students):             | \$50    | Non-refundable  |
| Student Tuition Recovery Fee (STRF):            | \$0     | Non-refundable  |
| Books and Supplies:                             | \$500   | Estimated Costs   |
| Housing Fee:                                    | \$6,395 | Refundable According to the Institutional Refund Policy |
| <b>Other:</b>                                   |         |   |
| Enrollment Fee:                                 | \$100   | Non-refundable  |

| Charges (for the first term)                 |                        |                 |                   |                 |
|--|------------------------|-----------------|-------------------|-----------------|
| Tuition and Fees                             | Undergraduate Students |                 | Graduate Students |                 |
|  | w/o Housing            | With Housing    | w/o Housing       | With Housing    |
| Undergraduate Tuition (based on 15 credits): | \$12,990               | \$12,990        |                   |                 |
| Graduate Tuition (based on 9 credits):       |                        |                 | \$4,491           | \$7,794         |
| Enrollment Fee:                              | \$100                  | \$100           | \$100             | \$100           |
| Campus Fee:                                  | \$500                  | \$500           | \$0               | \$0             |
| Technology Fee:                              | \$0                    | \$0             | \$50              | \$50            |
| Student Tuition Recovery Fee (STRF):         | \$0                    | \$0             | \$0               | \$0             |
| Books and Supplies (Estimated):              | \$500                  | \$500           | \$500             | \$500           |
| Housing Fee:                                 | \$0                    | \$6,395         | \$0               | \$6,395         |
| Student Housing Application Fee:             | \$0                    | \$300           | \$0               | \$300           |
| <b>Total Charges for the First Term:</b>     | <b>\$14,090</b>        | <b>\$20,785</b> | <b>\$5,141</b>    | <b>\$15,139</b> |

| Other Fees                                | Amount  |
|---|---|
| Late Payment Fee                          | \$25 per Payment Due Date (non-refundable)      |
| Official Transcript                       | \$10 per transcript (non-refundable)            |
| Graduation Fee                            | \$100 (non-refundable)                          |
| Credit by Examination Fee                 | \$75 per examination (non-refundable)           |
| Audit Fee (waived for Cogswell graduates) | \$500 per course (refundable per refund policy) |
| Diploma Reprint Fee                       | \$25 (non-refundable)                           |
| Student ID Card Replacement Fee           | \$10 (non-refundable)                           |
| Student Housing Application Fee           | \$300 (non-refundable)                          |
| Replacement VTA Pass Fee                  | \$25 (non-refundable)                           |
| International Students Enrollment Fee     | \$500 (non-refundable)                          |
| Non-sufficient Funds (NSF) Fee            | \$20 (non-refundable)                           |
| Late Equipment Return Fee                 | \$5 per day (non-refundable)                    |

*Tuition and Fees are subject to change.*

Effective Summer 2020, the Bachelor of Business Administration (BBA) program on Pages 48-49 is replaced with the below curriculum:

| <b>Bachelor of Business Administration (BBA) Curriculum</b> |   |                |
|---|---|----------------|
| <b>Business Administration Core Courses - 66 Credits</b>    |   |                |
| <b>Course Number</b>  | <b>Course Name</b>                            | <b>Credits</b> |
| BUS105  | Fundamentals of Accounting                    | 3              |
| BUS110  | Principles of Management and Entrepreneurship | 3              |
| BUS121  | Digital Technology and Communications         | 3              |
| BUS125  | Business Law                                  | 3              |
| BUS141  | Principles of Marketing                       | 3              |
| BUS150  | Principles of Economics                       | 3              |
| BUS210  | Global Entrepreneurship and Innovation        | 3              |
| BUS220  | Advanced Cost Accounting                      | 3              |
| BUS235  | Leading Teams                                 | 3              |
| BUS241  | Consumer and Market Behavior                  | 3              |
| BUS246  | Business Intelligence and Analytics           | 3              |
| BUS250  | Finance                                       | 3              |
| BUS270  | Project Management                            | 3              |
| BUS280  | Human Resource Management                     | 3              |
| BUS310  | Advanced Project Management                   | 3              |
| BUS320  | Pitching and Crowdfunding                     | 3              |
| BUS346  | Data and Decisions                            | 3              |
| BUS430  | Fundamentals of eCommerce                     | 3              |
| BUS450  | Operations and Technology                     | 3              |
| BUS490  | Strategic Management                          | 3              |
| RWPS480   | Senior Capstone Project 1                     | 3              |
| RWPS485   | Senior Capstone Project 2                     | 3              |
| <b>General Education Courses - 30 Credits</b>               |   |                |
| <b>Course Number</b>  | <b>Course Name</b>                            | <b>Credits</b> |
| ENG100  | English Composition                           | 3              |
| HUM100  | Disruptive Imagination                        | 3              |
| MATH112   | College Algebra                               | 3              |
| BUS111  | The Entrepreneurship Mindset                  | 3              |
| ENG250  | Speech and Oral Communications                | 3              |
| BUS290  | Creating Strategic Plans                      | 3              |
| HUM361  | Contemporary Ethical Issues                   | 3              |
| SSC380  | The Silicon Valley Ecosystem                  | 3              |
| HUM470  | Silicon Valley Challenge                      | 3              |
|   | Physical or Biological Science choice         | 3              |
| <b>Electives - 24 Credits</b>                               |   |                |
| <b>Total 120 Credits</b>                                    |   |                |

Effective Summer 2020, the BS in Computer Science (CS) program on Pages 52-55 is replaced with the below curriculum:

| <b>BS in Computer Science (CS) Curriculum</b>                                     |  |                |
|---|--|----------------|
| <b>Core Courses - 66 Credits</b>  |  |                |
| <b>Course Number</b>  | <b>Course Name</b>   | <b>Credits</b> |
| CS101   | Fundamentals of Computing  | 4              |
| CS105   | Code 0: Introduction to Programming and Logic in Python            | 4              |
| BUS110  | Principles of Management and Entrepreneurship                      | 3              |
| CS130   | Introduction to Cybersecurity and Ethical Hacking                  | 3              |
| CS110   | C Programming  | 4              |
| CS115   | Web Programming: HTML5, CSS and JavaScript                         | 3              |
| CS212   | Java Programming   | 4              |
| CS200   | User Experience: Application Interface Design and Implementation   | 3              |
| CS221   | Linux Programming Environment                                      | 3              |
| CS285   | C++ Programming: Object Oriented Programming                       | 4              |
| CS297   | Data Structures: Introduction to efficient data storage            | 3              |
| CS325   | Algorithms: Memory and CPU Efficient Computing                     | 3              |
| CS320   | Operating Systems Concepts   | 3              |
| CS360   | Database Management Systems  | 4              |
| CS361   | Introduction to Compilers  | 3              |
| CS375   | Mobile Programming for iOS   | 3              |
| CS376   | Mobile Programming for Android                                     | 3              |
| CS445   | Advanced C++ Programming   | 3              |
| RWPS480   | Senior Capstone Project 1  | 3              |
| RWPS485   | Senior Capstone Project 2  | 3              |
| <b>CSE Program Approved Courses (PAC) - Select 24 credits from the list below</b> |  |                |
| <b>Course Number</b>  | <b>Course Name</b>   | <b>Credits</b> |
| CS205   | Internet of Things: RaspberryPi and Arduino Development            | 3              |
| CS261   | Systems Architecture in the Cloud                                  | 4              |
| CS262   | Software Development in the Cloud                                  | 4              |
| CS263   | SysOps for Cloud Computing   | 4              |
| CS300   | Computers That Listen: Introduction to Natural Language Processing | 3              |
| CS316   | Advanced Web Programming   | 3              |
| CS341   | Network Systems  | 3              |
| CS351   | Computer Architecture  | 3              |
| CS352   | Embedded Software Systems  | 3              |
| CS450   | Cryptography: Introduction to Modern Cybersecurity                 | 3              |
| CS451   | Introduction to Self-Driving Cars                                  | 3              |
| CS446   | High Performance Computing   | 3              |
| CS457   | Machine Learning and Artificial Intelligence                       | 3              |
| CS459   | Big Data and Visualization   | 3              |
| MATH114   | Trigonometry   | 3              |
| MATH116   | Pre-Calculus   | 4              |
| MATH143   | Calculus 1   | 4              |
| MATH145   | Calculus 2   | 3              |
| MATH215   | Mathematics for Computer Graphics                                  | 3              |
| MATH290   | Linear Algebra and Transformations                                 | 3              |
| MATH320   | Geometry and Transformation  | 3              |
| <b>General Education Courses - 30 credits</b>                                     |  |                |
| <b>Total 120 Credits</b>  |  |                |

**GENERAL EDUCATION COURSE REQUIREMENTS**

Effective Summer 2020, The General Education Course Requirements on Pages 69-71 are as outlined below:

| <b>PREPARATORY COURSES</b>   |   |                |                          |
|--|---|----------------|--------------------------|
| <i>Preparatory Courses may be required in certain subjects. These courses DO NOT count towards degree completion</i> |   |                |                          |
| <b>Course Number</b>   | <b>Course Name</b>                      | <b>Credits</b> | <b>Prerequisites</b>     |
| ENG050   | Grammar and Composition                 | 3              | None                     |
| MATH050  | Basic Algebra                           | 3              | None                     |
| MATH060  | Success in College Algebra              | 2              | Placement Exam           |
| DAT050   | Music Fundamentals                      | 3              | None                     |
| <b>BASIC SKILLS (3 Courses)</b>  |   |                |                          |
| <b>AREA: WRITTEN COMMUNICATION</b>   |   |                |                          |
| <b>Course Number</b>   | <b>Course Name</b>                      | <b>Credits</b> | <b>Prerequisites</b>     |
| ENG100   | English Composition                     | 3              | ENG050 or Placement Exam |
| <b>AREA: ORAL COMMUNICATION</b>  |   |                |                          |
| <b>Course Number</b>   | <b>Course Name</b>                      | <b>Credits</b> | <b>Prerequisites</b>     |
| ENG250   | Speech and Oral Communication           | 3              | ENG100                   |
| <b>AREA: CRITICAL THINKING</b>   |   |                |                          |
| <b>Course Number</b>   | <b>Course Name</b>                      | <b>Credits</b> | <b>Prerequisites</b>     |
| HUM100   | Disruptive Imagination                  | 3              | None                     |
| <b>ARTS (1 Course)</b>   |   |                |                          |
| <b>Course Number</b>   | <b>Course Name</b>                      | <b>Credits</b> | <b>Prerequisites</b>     |
| HUM120   | The Nature and History of Western Art   | 3              | None                     |
| HUM122   | World Music                             | 3              | None                     |
| HUM225   | The Horror Film                         | 3              | ENG100                   |
| HUM226   | Science Fiction Cinema                  | 3              | ENG100                   |
| HUM227   | Film History                            | 3              | ENG100                   |
| HUM228   | Video Games and Society                 | 3              | ENG100                   |
| HUM230   | History of Animation                    | 3              | ENG100                   |
| ENG280   | Apocalypse and The American Imagination | 3              | ENG100                   |
| ENG285   | Visions of American Dystopias           | 3              | ENG100                   |
| BUS111   | The Entrepreneurship Mindset            | 3              | ENG100                   |
| <b>WRITTEN COMMUNICATION II (1 Course)</b>   |   |                |                          |
| <b>Course Number</b>   | <b>Course Name</b>                      | <b>Credits</b> | <b>Prerequisites</b>     |
| ENG220   | Technical and Professional Writing      | 3              | ENG100                   |
| ENG227   | Scriptwriting                           | 3              | ENG100                   |
| ENG228   | Creative Writing                        | 3              | ENG100                   |
| ENG229   | Cog: The Publishing Experience          | 3              | ENG100                   |
| ENG300   | Essentials of Written Communication     | 3              | ENG100                   |
| BUS290   | Creating Strategic Plans                | 3              | ENG100                   |

**SOCIAL SCIENCES (1 Course)**

| Course Number | Course Name                      | Credits | Prerequisites     |
|---------------|----------------------------------|---------|-------------------|
| SSC180        | Introduction to Psychology       | 3       | None              |
| SSC227        | Architecture and World Societies | 3       | ENG100            |
| SSC225        | Fashion and Culture              | 3       | ENG100            |
| HUM200        | History of the Modern World      | 3       | ENG100            |
| SSC380        | The Silicon Valley Ecosystem     | 3       | ENG100 and HUM100 |
| SSC200        | U.S. Government                  | 3       | ENG100            |

**MATHEMATICS AND SCIENCE – 1 Course from each area.****AREA 1: MATHEMATICAL CONCEPTS AND QUANTITATIVE REASONING (1 Course)**

| Course Number | Course Name                      | Credits | Prerequisites             |
|---------------|----------------------------------|---------|---------------------------|
| MATH112       | College Algebra                  | 3       | MATH050 or Placement Exam |
| MATH115       | College Algebra and Trigonometry | 3       | MATH003 or Placement Exam |
| MATH116       | Pre-Calculus                     | 4       | MATH003 or Placement Exam |
| MATH143       | Calculus 1                       | 4       | MATH116                   |

**AREA 2: PHYSICAL AND BIOLOGICAL SCIENCES for BA Degrees (1 Course)**

| Course Number | Course Name                                    | Credits | Prerequisites                |
|---------------|--|---------|------------------------------|
| SCI101        | Basic Physics 1                                | 3       | MATH115, MATH116 or MATH143  |
| SCI102        | Basic Physics 2                                | 3       | MATH115, MATH116 or MATH143  |
| SCI110        | Science of Motion: Humans, Animals, Objectives | 3       | MATH115, MATH116, or MATH143 |
| SCI120        | Basic Biology                                  | 3       | None                         |
| SCI125        | Introduction to Astronomy                      | 3       | None                         |
| SCI130        | Basic Concepts of Anatomy and Physiology       | 3       | MATH115, MATH116 or MATH143  |
| SCI145        | College Physics 1                              | 4       | MATH143                      |
| SCI245        | College Physics 2                              | 4       | SCI145                       |

**AREA 2: PHYSICAL AND BIOLOGICAL SCIENCES for BS Degrees (1 Course)**

| Course Number | Course Name     | Credits | Prerequisites               |
|---------------|-----------------|---------|-----------------------------|
| SCI101        | Basic Physics 1 | 3       | MATH115, MATH116 or MATH143 |

**UPPER-DIVISION GENERAL EDUCATION – 1 Course from each area****AREA 1: 300-LEVEL GE COURSE (1 Course)**

| Course Number | Course Name                         | Credits | Prerequisites |
|---------------|-------------------------------------|---------|---------------|
| ENG300        | Essentials of Written Communication | 3       | Junior Status |
| ENG310        | Classics of Western Drama           | 3       | Junior Status |
| HUM361        | Contemporary Ethical Issues         | 3       | Junior Status |
| SSC332        | Global Political Economics          | 3       | Junior Status |

**AREA 2: SENIOR-LEVEL RESEARCH AND WRITING (1 Course)**

| Course Number | Course Name                           | Credits | Prerequisites |
|---------------|---------------------------------------|---------|---------------|
| HUM400        | Research and Writing Capstone Project | 3       | Senior Status |
| HUM470        | Silicon Valley Challenge              | 3       | Senior Status |

## COURSE DESCRIPTIONS

The following Course Descriptions listed on Pages 71-128 have been revised:

| Course Number | Course Name                                   | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---|---------|---------------|------------------|---------------------|
| BUS110        | Principles of Management and Entrepreneurship | 3       | 45            | 0                | 45                  |

Students develop skills and knowledge needed to successfully manage businesses and organizations. This course is an intensive and comprehensive introductory study and analysis of the processes required to make effective business decisions in the areas of marketing, operations, human resources management, finance, business viability and execution of strategies.

**Prerequisite: None**

| Course Number | Course Name                  | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|------------------------------|---------|---------------|------------------|---------------------|
| BUS111        | The Entrepreneurship Mindset | 3       | 45            | 0                | 45                  |

In this course, students learn about specific human behaviors and mindset that enable entrepreneurs to motivate, mobilize and influence others as a positive change maker in an organization. Students develop an understanding how the entrepreneurial mindset creates value for stakeholders and society.

**Prerequisite: As Appropriate**

| Course Number | Course Name                           | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------------------------------|---------|---------------|------------------|---------------------|
| BUS121        | Digital Technology and Communications | 3       | 45            | 0                | 45                  |

Modern organizations rely on technology and use digital tools to communicate effectively. This course is designed to provide students with an understanding of the impact of digital technologies and media in business communication.

**Prerequisite: None**

| Course Number | Course Name                            | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--|---------|---------------|------------------|---------------------|
| BUS 210       | Global Entrepreneurship and Innovation | 3       | 45            | 0                | 45                  |

Entrepreneurs create value through their ventures not only locally but globally. This course examines how entrepreneurs adapt to and succeed in a global economy.

**Prerequisite: BUS110**

| Course Number | Course Name   | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------|---------|---------------|------------------|---------------------|
| BUS235        | Leading Teams | 3       | 45            | 0                | 45                  |

Students learn and explore multiple aspects of collaboration and team work as they create and test their own leadership styles. Team building is explored through case studies and role plays of team formation, brainstorming and collaboration.

**Prerequisite: BUS110**

| Course Number | Course Name                         | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-------------------------------------|---------|---------------|------------------|---------------------|
| BUS246        | Business Intelligence and Analytics | 3       | 45            | 0                | 45                  |

This course introduces the fundamental quantitative methods using statistical software and spreadsheets. Students learn the importance of using modern technology tools for effective model building and decision-making.

**Prerequisite: BUS110 and MATH112 or MATH115 or MATH116**

| Course Number | Course Name              | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--------------------------|---------|---------------|------------------|---------------------|
| BUS290        | Creating Strategic Plans | 3       | 45            | 0                | 45                  |

Students gain the tools necessary to produce powerful business and project plans. The course will focus on achieving rhetorical effectiveness through a consideration of communication styles and strategic writing process.

**Prerequisite: BUS110 and ENG100 or Faculty Approval**



| Course Number | Course Name               | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------------------|---------|---------------|------------------|---------------------|
| BUS320        | Pitching and Crowdfunding | 3       | 45            | 0                | 45                  |

Crowdfunding, the practice of raising small amounts of money from large numbers of people, has enabled people around the world to start new businesses, fund initiatives, and raise money for themselves and others. This course introduces students to the art and science of crowdfunding and start developing skills on how to run campaigns.

**Prerequisite: BUS110 and BUS141 and BUS250 or Faculty Approval**

| Course Number | Course Name        | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--------------------|---------|---------------|------------------|---------------------|
| BUS346        | Data and Decisions | 3       | 45            | 0                | 45                  |

Students understand the role of data and how statistical analysis improve decision-making. The course will draw on a variety of business and social science applications.

**Prerequisite: BUS110 and BUS245**

| Course Number | Course Name               | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------------------|---------|---------------|------------------|---------------------|
| BUS450        | Operations and Technology | 3       | 45            | 0                | 45                  |

Students will explore the design, scheduling and control of systems that efficiently use human and capital inputs to create products and services for companies and consumers. Coursework will explore the growth cycles of a company and gain an understanding of different issues, options and strategies to consider as the company reaches each growth cycle.

**Prerequisite: BUS110 and BUS245**

| Course Number | Course Name                | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|----------------------------|---------|---------------|------------------|---------------------|
| HUM122        | Music That Moves the World | 3       | 45            | 0                | 45                  |

Study of representative music and instruments from world cultures including Middle Eastern, Asian/Pacific, Indian, African, Latin American, North American and Western. Emphasis is on world music's impact and influence on contemporary American musical styles and performance.

**Prerequisite: None**

| Course Number | Course Name              | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--------------------------|---------|---------------|------------------|---------------------|
| HUM470        | Silicon Valley Challenge | 3       | 45            | 0                | 45                  |

This course is an individual capstone experience for seniors. It is designed for students to develop skills as innovative thinkers by applying their skills of topic development, critical reading, research techniques, use of sources in arguments, and advanced composition. Students will decide on an individual research project or an innovative proposal which can take a variety of forms, including a case study, feasibility study, comprehensive research paper, business plan, or similar as agreed to by faculty. At the end of the course, students will present their projects to colleagues and a panel. Students are encouraged to undertake research relevant to their career interests in Silicon Valley and beyond.

**Prerequisite: Senior Status or Faculty Approval**

| Course Number | Course Name        | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--------------------|---------|---------------|------------------|---------------------|
| RWPS480       | Capstone Project A | 3       | 45            | 0                | 45                  |

RWPS480 is Part 1 of the final, 2 semester (6 credit) capstone project in which student groups develop a project idea, create and document an effective project plan, and begin pre-production activities appropriate to the project. This course proceeds with faculty facilitation and supervision, with students providing direction. Groups will typically develop their own project brief to be approved by a faculty panel, and update their faculty facilitator throughout the semester. Each student will be reviewed as individuals and groups throughout the semester according to professional standards established by students and faculty. Students are expected to deploy a full range of creative, technical and collaborative skills as developed throughout their studies at Cogswell. The project will be concluded during RWPS485 Capstone Studio 2, and so should be scoped effectively to cover two semesters.

**Prerequisite: Senior Status or Faculty Approval**

| Course Number | Course Name        | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--------------------|---------|---------------|------------------|---------------------|
| RWPS485       | Capstone Project B | 3       | 45            | 0                | 45                  |

RWPS485 is Part 2 of the final, 2 semester (6 credit) capstone project in which student groups resume development of the project planned in RWPS480. This course proceeds with faculty facilitation and supervision, with students providing creative direction. Groups will proceed with the production of their project, executing the development according to the previously devised plan. Each student will be reviewed as individuals as well as in groups, according to professional standards established in the previous course. Students are expected to deploy a full range of creative, technical and collaborative skills as developed throughout their studies at Cogswell. To conclude the semester, groups will present their work to a panel of faculty and guests for feedback.

**Prerequisite: RWPS480**

| Course Number | Course Name                  | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|------------------------------|---------|---------------|------------------|---------------------|
| SSC380        | The Silicon Valley Ecosystem | 3       | 45            | 0                | 45                  |

Silicon Valley is known to be the hub of innovation. This course is designed for students to understand the role of Silicon Valley in wealth creation by taking them through the exciting and rich history of Silicon Valley, its early beginnings and how its culture helps shape the dynamic ecosystem of innovation. Students will learn about pivotal people, inventions, companies, as well as their successes and failures that made an impact on society and the world.

**Prerequisite: ENG100 and HUM100**

| Course Number | Course Name       | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-------------------|---------|---------------|------------------|---------------------|
| BUS510        | Business Analysis | 3       | 45            |                  | 45                  |

Successful project delivery in organizations often start with a comprehensive understanding of stakeholder requirements based on evidence and data. Once these requirements are identified and validated, recommendation of solutions and implementation strategies follow. This course provides an introduction to the foundations of business analysis, and the processes and methods used to conduct needs assessment, identify stakeholders, document requirements, and facilitate implementation. Students will develop skills to make better and more informed decisions to achieve improved business and organization outcomes.

**Prerequisites: None**

| Course Number | Course Name                  | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|------------------------------|---------|---------------|------------------|---------------------|
| BUS520        | Risk Analysis and Management | 3       | 45            |                  | 45                  |

Risk management is increasingly becoming an important function in leading projects and organizations. An effective risk management process helps companies mitigate losses, improve overall performance and increase employee engagement. This course is designed to provide students with a thorough understanding of risk analysis and management. Students learn various industry techniques, methods and models enabling them to anticipate, assess, minimize, manage and communicate risks.

**Prerequisites: None**

| Course Number | Course Name                                       | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---|---------|---------------|------------------|---------------------|
| CLT511        | Understanding the Business of Creative Industries | 3       | 45            | 0                | 45                  |

This course provides students an overview of the creative industries and their contribution to the overall economy. Students will examine how businesses and organizations in the creative industry operate and thrive, as well as critical factors that drive success in this industry. Students will explore the relationship between creativity, business, technology and other key operating environments.

**Prerequisites: None**

| Course Number | Course Name         | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------------|---------|---------------|------------------|---------------------|
| DAT220        | Studio Production 1 | 3       | 15            | 60               | 75                  |

Introduction to recording in a studio environment. Use of a digital audio workstation in a studio production environment. Basics of recording and editing. Introduction to microphone selection and placement. Signal flow in the analog and digital domains. Audio processing with outboard hardware and plug-ins. File management.

**Prerequisite: DAT110**

| Course Number | Course Name               | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------------------|---------|---------------|------------------|---------------------|
| CS101         | Fundamentals of Computing | 4       | 60            | 0                | 60                  |

This course introduces students to the history of computing as well as fundamental computing concepts such as logic, data and data types, structured programming fundamentals, documentation and debugging. Students will learn to design and diagram software programs using flowcharts and pseudocode before implementing simple programming techniques in a development environment. Students will also be introduced to the basics of computer hardware and components, and undertake basic research into computing technology and its relationship with human users. This course will also include content from the AWS Academy Cloud Foundations course and prepare students for the relevant AWS Academy examination.

**Prerequisites: None**

| Course Number | Course Name   | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---|---------|---------------|------------------|---------------------|
| CS105         | Code 0: Introduction to Programming and Logic in Python | 4       | 60            | 0                | 60                  |

In this course, students are introduced to the procedural computer programming paradigm, including a foundation in Boolean logic. Students learn practical hardware topics such as CPU, memory, disks and files as well as lexical elements, operators, fundamental data types, flow of controls, functions, recursions, arrays, pointers, strings, bit-wise operators, structures, unions, file manipulation. Standards of program development flow and structured programming paradigm are also covered.

**Prerequisites: None**

| Course Number | Course Name   | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------|---------|---------------|------------------|---------------------|
| CS110         | C Programming | 4       | 45            | 30               | 75                  |

An introduction computer programming using the C programming language. Students learn practical hardware topics such as CPU, memory, disks and files as well as lexical elements, operators, fundamental data types, flow of controls, functions, recursions, arrays, pointers, strings, bitwise operators, structures, union and file manipulation. The standards of program development flow and structured programming paradigm are also covered.

**Prerequisite: CS101 and CS105 and MATH112**

| Course Number | Course Name                                       | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---|---------|---------------|------------------|---------------------|
| CS130         | Introduction to Cybersecurity and Ethical Hacking | 3       | 45            | 0                | 45                  |

In this class, students are introduced to simple historical cryptosystems, Caesar cypher, scytal spartan cypher, egyption cryptosystems, basic substitution & permutation ciphers, one-time pad, and some hacking concepts. Students learn how these systems work in a puzzle solving fashion by sending cryptographic and plain text messages to each other. Students are introduced to the concepts & principles of ethical "white" hacking and study past and current articles and topics related to this. Interesting articles on malicious hacking may also be included as part of this course. Modern and current cryptography techniques are not covered in this course.

**Prerequisite: None**

| Course Number | Course Name  | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--|---------|---------------|------------------|---------------------|
| CS200         | User Experience: Application Interface Design and Implementation | 3       | 30            | 30               | 60                  |

Students learn the critical fundamental concepts and theory behind good user interface design. These interface design principles are taken into code where students learn a user interface framework, toolset, and language to implement interfaces. Students program and develop user interfaces that work on multiple platforms (web, pc, and/or mobile) using standard industry techniques and tools. The course may deploy frameworks such as Qt, JavaScript, React, Java, and other middleware or backend tools.

**Prerequisite: CS285**

| Course Number | Course Name   | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---|---------|---------------|------------------|---------------------|
| CS205         | Internet of Things: RaspberryPi and Arduino Development | 3       | 30            | 30               | 60                  |

In this course, students are exposed to the Internet of Things through application of development and programming on Raspberry Pi and/or Arduino devices. Students learn the importance and skills needed to properly deploy and develop software on these devices. Students learn the theory and get the development practice needed to prototype Internet of Things (IoT) solutions.

**Prerequisite: CS110**

| Course Number | Course Name      | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|------------------|---------|---------------|------------------|---------------------|
| CS212         | Java Programming | 4       | 45            | 30               | 75                  |

Students develop a working understanding of Java Programming and the object-oriented paradigm. Topics include primitive types, strings, classes, objects, methods, references, polymorphisms, inheritance, exception handling, streams and file I/O, arrays, vectors, and applets. Students are also introduced to multi-threaded programming.

**Prerequisite: CS105 and MATH112**

| Course Number | Course Name                   | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-------------------------------|---------|---------------|------------------|---------------------|
| CS221         | LINUX Programming Environment | 3       | 30            | 30               | 60                  |

Students learn the principles need to program in the UNIX/LINUX environment. Through practical, hands-on programming, students develop an understanding of the structure of UNIX/LINUX file systems, shell programming filters and UNIX/LINUX system calls. Other topics include standard I/O library, shell programming, AWK programming language, and SED editor.

**Prerequisite: CS110**

| Course Number | Course Name                       | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-----------------------------------|---------|---------------|------------------|---------------------|
| CS261         | Systems Architecture in the Cloud | 4       | 60            | 0                | 60                  |

This course introduces students to system architecture in a cloud-based context. Students will analyze different business system needs and follow a range of cloud-based best practices to design and compare potential solutions for each challenge. Students will focus on designing for manageability and performance of large-scale systems. This course will include content from the AWS Academy Cloud Architecting course and prepare students for the relevant AWS Academy examination.

**Prerequisite: CS101 and CS105**

| Course Number | Course Name                       | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-----------------------------------|---------|---------------|------------------|---------------------|
| CS262         | Software Development in the Cloud | 4       | 60            | 0                | 60                  |

This course explores hands-on development and configuration of cloud-based software applications. Students will understand and implement design and development processes in a cloud platform, and explore the principles of cloud computing. A range of common principles will be identified along with key features of the proprietary platform used in the course. This course will include content from the AWS Academy Cloud Developing course and prepare students for the relevant AWS Academy examination.

**Prerequisite: CS101 and CS105**

| Course Number | Course Name                | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|----------------------------|---------|---------------|------------------|---------------------|
| CS263         | SysOps for Cloud Computing | 4       | 60            | 0                | 60                  |

This course introduces students to system operation concepts in a cloud-based environment. Students will learn best practices and design patterns in order to develop automatable and repeatable deployments of networks and systems in an industry-standard cloud environment. Students will analyze case studies to gain insight into infrastructure design and implementation. This course will include content from the AWS Academy Cloud Operations course and prepare students for the relevant AWS Academy examination.

**Prerequisite: CS101 and CS105**

| Course Number | Course Name                                  | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--|---------|---------------|------------------|---------------------|
| CS285         | C++ Programming: Object Oriented Programming | 4       | 45            | 30               | 75                  |

Students learn the common features of C as well as C++. Objected Oriented features of C++. Constructors and Destructors. Type Conversions. Friends. Overloading functions and operators. References. Polymorphisms. I/O streams. Multiple inheritances. Templates. Memory Management. Students practice the structured programming paradigm as well as the objected oriented paradigm.

**Prerequisite: CS105**

| Course Number | Course Name   | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---|---------|---------------|------------------|---------------------|
| CS297         | Data Structures: Introduction to efficient data storage | 3       | 30            | 30               | 60                  |

Efficient data performance is critical to good software development. In this course, students learn how to store data efficiently and the pros and cons of different data structures. Students quickly review the fundamental use and storage considerations of scalar data types. Students use object-oriented programming techniques to learn and implement abstract data types like stacks, queues, linked list, hash tables, binary search trees, Huffman codes, and other tree-based data structures. Students gain the ability to know when, why, and where each data type should be used and their data storage characteristics for memory efficient software development.

**Prerequisite: CS285**

| Course Number | Course Name  | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--|---------|---------------|------------------|---------------------|
| CS300         | Computers That Listen: Introduction to Natural Language Processing | 3       | 30            | 30               | 60                  |

In this course, students learn introductory concepts and technologies for natural language processing technology that allows computers to listen and understand speech. The course covers such topics as text classification, named entities recognitions, duplicates detection, sentiment analysis, summarization, and dialogue state tracking. Students learn about practical application of this natural language processing (NLP) technology to real problems.

**Prerequisite: CS285**

| Course Number | Course Name                | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|----------------------------|---------|---------------|------------------|---------------------|
| CS320         | Operating Systems Concepts | 3       | 45            | 0                | 45                  |

Students learn how UNIX, LINUX, and Windows operating systems are designed. Students practice data structures in operating systems design. Topics include: general multitasking operating systems, scheduling algorithms, deadlocks, concurrency problems and solutions, process management, thread management, disk management, memory management, virtual memory, file system organization, and security.

**Prerequisite: CS221 and CS297 and CS325**

| Course Number | Course Name                                    | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--|---------|---------------|------------------|---------------------|
| CS325         | Algorithms: Memory and CPU Efficient Computing | 3       | 30            | 30               | 60                  |

Software CPU performance and the ability to write fast software is a critical skill for all developers. In this course, students learn the essential techniques and analysis required to write high-performance software. Students learn about the mathematical fundamentals to analyzing algorithm performance: Big O and Big Omega. They learn how to apply this mathematical analysis to various algorithms. Algorithms and topics covered include sorting, searching, text-pattern matching, string searching, graph-based tree traversal algorithms, and other algorithms that have performance. Students learn techniques to transform and conquer problems and to mentally map one problem into another. Recursive algorithm techniques are studied ranging from Greedy Algorithms to Dynamic Programming techniques. Students explore and vastly improve on their creative-technical skills & ability to solve challenging problems needed to create CPU efficient software.

**Prerequisite: CS297 and MATH295**

| Course Number | Course Name           | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-----------------------|---------|---------------|------------------|---------------------|
| CS351         | Computer Architecture | 3       | 45            | 0                | 45                  |

This course provides a strong foundation in modern computer architecture structured around processors and memory. It introduces students to instructions sets (like CISC and RISC), principles of pipe-lining, memory management, and computer arithmetic algorithms and number representations.

**Prerequisite: CS297 and CS325**

| Course Number | Course Name               | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------------------|---------|---------------|------------------|---------------------|
| CS352         | Embedded Software Systems | 3       | 30            | 30               | 60                  |

Technologies used in the design and implementation of embedded systems. Introduction to software tools such as compilers, schedulers, code generators, and system-level design tools. Introduction to computer organization: CPU, I/O, Memory. INTEL/MIPS Assembly language. Linking C and Assembly Language.

**Prerequisite: MATH295 and CS110**

| Course Number | Course Name                 | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-----------------------------|---------|---------------|------------------|---------------------|
| CS360         | Database Management Systems | 4       | 45            | 30               | 75                  |

Students apply concepts from data structures and compiler design in database management. Topics include: file organization, indexing techniques, data models, query languages, B-trees, B\*-trees, Study design and implementation of a relational database.

**Prerequisite: CS101 and CS105**

| Course Number | Course Name               | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|---------------------------|---------|---------------|------------------|---------------------|
| CS361         | Introduction to Compilers | 3       | 30            | 30               | 60                  |

This course familiarizes students with the concepts involved in writing a compiler such as parsing and lexical analysis and different types of grammars and syntax tree, code generation and optimization. Students will learn by writing different parts of a compiler.

**Prerequisite: CS110 and CS325**

| Course Number | Course Name  | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|--|---------|---------------|------------------|---------------------|
| CS450         | Cryptography: Introduction to Modern Cybersecurity | 3       | 30            | 30               | 60                  |

In this course, students learn modern cryptography techniques and the mathematical techniques they are founded on. Students learn modern encryption/decryption ciphers such as symmetric and asymmetric ciphers, key exchange algorithms, digital signatures, AES, DES, Diffie-Hellman, & ElGamal algorithms. Students learn to solve challenging crypto problems by hand. Students may also learn to use standard libraries or write software for encryption and decryption of cryptographic data.

**Prerequisite: CS130 and MATH295 and CS285**

| Course Number | Course Name                       | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-----------------------------------|---------|---------------|------------------|---------------------|
| CS451         | Introduction to Self-Driving Cars | 3       | 30            | 30               | 60                  |

Students are introduced to self-driving cars (autonomous vehicle) systems and technology. Students learn how to operate, and apply this technology. Students will gain an understanding of localization, sensor fusion, perception, detection, segmentation, scene understanding, tracking, prediction, path planning, control, routing, and decision making.

**Prerequisite: CS285 and MATH295**

| Course Number | Course Name      | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|------------------|---------|---------------|------------------|---------------------|
| CS457         | Machine Learning | 3       | 30            | 30               | 60                  |

This course will acquaint students with basics of machine learning and pattern recognition and different learning techniques like generative, discriminative and parametric. Some applications of machine learning to data mining, speech-recognition, and robotics will also be discussed.

**Prerequisite: CS285 and MATH295**

| Course Number | Course Name                 | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|-----------------------------|---------|---------------|------------------|---------------------|
| CS459         | Data Mining & Visualization | 3       | 30            | 30               | 60                  |

Data Mining will introduce students to the science of recognizing patterns and structures in large complex data sets and applying tools from statistics to do predictions.

**Prerequisite: CS285 and MATH295**

| Course Number | Course Name                  | Credits | Lecture Hours | Laboratory Hours | Total Contact Hours |
|---------------|------------------------------|---------|---------------|------------------|---------------------|
| GAM230        | Introduction to Game Engines | 3       | 30            | 30               | 60                  |

This course introduces students to industry standard game engines. Students will gain an understanding of how these game engines function, their commonalities and differences. Students will produce simple games with two popular engines.

**Prerequisite: DAA240**