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**DATA SCIENCE AND BUSINESS ANALYTICS DEPARTMENT**

**EGS 3625 - Engineering & Technology Project Management**

**Fall 2020**

**Instructor**

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**Course Schedule & Location**

* Monday, Wednesday and Friday: 11:00 – 11:50 pm [Aug 20, 2020 - Dec 3, 2020]
* Location: Online/ Remote (through TEAMS)

**Class delivery mode/Meeting times expectations**

This course is fully online. We will meet remotely during scheduled class times through TEAMS.

**Credit Hours:** 3

**Final Exam**

December 7-11th (*Exact Date To Be Determined*)

**Office Hours**

Online through TEAMS

Monday and Wednesday: 4:00 – 5:20 pm & Friday 11:50 – 12:10 (or by appointment)

**Course Website**

<https://floridapolytechnic.instructure.com/courses/4585>

**Catalog Course Description:** This course discusses planning, controlling, and evaluating technology and engineering projects. Topics include modeling, project organization, risk analysis, technical forecasting, time and cost estimation and accommodation, and resource allocation and leveling. Verbal and written technical and managerial reports are also required.

**Prerequisites:** None

**Communication/Computation Skills Requirement (6A-10.030):** No

**Textbooks and Reference Materials**

[Required] A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–6th Edition

[Required] PMP Exam Prep: Accelerated Learning to Pass the Project Management Professional Exam 9th Edition*,* By: Rita Mulcahy 2018, ISBN 9781943704040

[Optional] Project Management for Engineering, Business and Technology, 5th Edition 2017 ISBN: 9781138937345; By: John M. Nicholas, Herman Steyn

**Equipment and Materials**

We will use Microsoft Project software. The software is available on campus; the free trial version is also available for 30 days. The course covers basic knowledge in activity entry, scheduling, time cost trade-offs, and reporting. The aim is to learn necessary steps of implementing the project management in practice. Also, another alternative is to use the following link <https://view.floridapoly.edu/> to access the software.

**Course Objectives**

* To understand different project management concepts and techniques.
* To learn how to apply them in industry and work environment.
* To learn and demonstrate an ability to manage key component of a project.
* To acquire a solid foundation for the PMP exam.

**Learning Outcomes**

Upon completion of this course, students should be able to

1) Understand standard terminology in project management.

2) Realize project management process chart.

3) Plan and manage critical project elements such as cost, time, scope and quality.

4) Identify risks in projects and perform corresponding quantitative analysis.

**Alignment with Program Outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Learning Outcome | | | |
| ABET Student Outcomes | 1 | 2 | 3 | 4 |
| (1) Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics |  |  | X |  |
| (2) Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare as well as global, cultural, social, environmental, and economic factors |  |  |  |  |
| (3) Communicate effectively with a range of audiences | X |  |  |  |
| (4) Recognize ethical and professional responsibilities in engineering situations and make informed judgments which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts |  |  |  |  |
| (5) Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives | X | X |  |  |
| (6) Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions |  |  |  | X |
| (7) Acquire and apply new knowledge as needed using appropriate learning strategies |  |  |  |  |

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| --- | --- | --- | --- | --- |
|  | Learning Outcome | | | |
| Data Science Program Student Outcomes | 1 | 2 | 3 | 4 |
| (1) Apply current data science concepts, techniques, and practices to solve complex problems. |  | X |  |  |
| (2) Analyze a given data science problem and formulate a solution in terms of the datasets needed, the techniques required or the technologies to be utilized. |  |  | X | X |
| (3) Communicate effectively insights, analysis, conclusions, or solutions to a diverse audience. | X | X |  |  |

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| --- | --- | --- | --- | --- |
|  | Learning Outcome | | | |
| Business Analytics Program Student Outcomes | 1 | 2 | 3 | 4 |
| (1) Apply current business analytics concepts, techniques, and practices to solve business problems. |  | X |  |  |
| (2) Analyze a given business problem using appropriate analytics techniques to generate insights and solutions. |  |  | X | X |
| (3) Communicate effectively insights, analysis, conclusions, and solutions to a diverse audience. | X | X |  |  |

**Grading**

* Mid-term (20%)
* Final Exam (20%)
* Software Exam (20%)
* Quizzes (10%)
* Homework (10%)
* Project (20%) detail will be provided in class and posted on Canvas

The following grading scale applies:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A | 93% – 100% | B | 83% – <87% | C | 73% – <77% | D | 63% –< 67% |
| A– | 90% – <93% | B– | 80% – <83% | C– | 70% – <73% | D– | 60% – <63% |
| B+ | 87% – <90% | C+ | 77% – <80% | D+ | 67% – <70% | F | 0% – <60% |

*Homework:*Homework will be assigned corresponding to the covered chapters. Due dates vary depending on topic and will be announced in class and on canvas. The homework will help students to learn technical aspects of the project management. Late submissions will not receive credit; so, please complete and submit them on time. Tentative homeworkers topics are as follows.

HW 1: Project Charter

HW 2: Work Breakdown Structure

HW 3: Activity-on-Arrow

HW 4: Activity-on-Nodes

HW 5: Earned Value analysis

*Quizzes:*There will be quizzes at the end of each chapter. This will give you an idea of what to expect on exams and provide early feedback on your progress.

*Project:*A team of three students will select a project with at least 20 activities. The team need to tailor and apply recommended steps in PMBOK. Accordingly, each team need to submit their final report including the summary of project, method of estimating for cost and time, software, and output reports. This will help you to apply some of ten knowledge areas you learned in class. Also, projects will be presented at the end of semester. A sample and detailed instructions with specific guidelines and formatting will be available on canvas. The final report is due on the last day of class. Also, report and presentation rubrics are provided at the end of the syllabus.

*Sample final project topics:*

Constructing a building, gas station, store, etc.

Conducting a research project,

Opening a business or a firm,

Organizing an important meeting event,

Renovating activities,

Developing a product or service,

Designing a vehicle.

**Attendance**

You are expected to attend and participate actively in class. Attendance record will be taken, and participation in class discussions and activities will be monitored. (See also [University Policy](https://floridapoly.edu/wp-content/uploads/FPU-5.0010AP-Student-Attendance-05.28.14-FINAL.pdf)), which reads “Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor.” Attendance in this environment does not, of course, mean actual physical attendance in the classroom, although it may include that.

**Late Work/Make-up work**

Each student must keep current on assignments. Late assignments are not graded, unless permission has been obtained from the instructor in advance.

**Tentative Schedule**

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| --- | --- | --- |
| **Week** | **Topics** | **Quiz/HW** |
| 1 | Chapter 2  Project Management Framework  Organizational Structure  The Importance of Project Management  Relationship of Project, Program, Portfolio, and Operations Management  Enterprise Environmental Factors |  |
| 2 | Chapter 4  Integration Management  Management process chart  Develop Project Charter  Manage Project Knowledge  Perform Integrated Change Control | Quiz 1 |
| 3 | Chapter 5  Scope Management  Collect Requirements  Define Scope  Create WBS  Validate Scope  Control Scope | Quiz 2 |
| 4 | Chapter 6  Schedule Management  Network Diagrams  Define Activities (Activity on Node & Activity on Arrow)  Sequence Activities  Develop Schedule | Quiz 3  HW 1 |
| 5 | Chapter 6  Schedule Management  Estimate Activity Durations  Scheduling and Estimate | Quiz 4  HW 2 |
| 6 | Chapter 6  Schedule Management  CPM and Critical Path Calculation | HW3 |
| 7 | Problem solving, Review and Midterm |  |
| 8 | Chapter 7  Cost Management  Determine Budget  Cost-Time Trade-offs |  |
| 9 | Chapter 7  Cost Management  Resource Leveling | Quiz 5 |
| 10 | Chapter 7  Earned Value Analysis, Planned Value, and Actual Costs  Calculating and interpreting  PV, EV, AC, CPI, SPI, BAC, EAC, ETC, VAC, CV, SV | Quiz 6  HW4 |
| 11 | MSP Software (data entry, analyzing and reporting) |  |
| 12 | MSP Software (data entry, analyzing and reporting) | HW5/Practice |
| 13 | Chapter 8  Quality Management  Plan Quality Management  Manage Quality  Control Quality |  |
| 14 | Chapter 8  Review of Human Resource Management  Chapter 9  Review of Communications Management | Quiz 7 |
| 15 | Chapter 11  Risk Management  Plan Risk Management  Identify Risks  Perform Qualitative Risk Analysis  Perform Quantitative Risk Analysis | Quiz 8 |

*Chapter numbers are based on the PMP prep reference book.*

*This table might be modified as required by the progression of the class.*

**Academic Support Resources**

* Library: Students can access the Florida Polytechnic University Library through the University website and [Canvas](https://floridapolytechnic.instructure.com/login), on and off campus. Students may direct questions to Academic Success Center [success@floridapoly.edu](mailto:success@floridapoly.edu) or by email, [library@floridapoly.edu](mailto:library@floridapoly.edu).
* ASC: The Academic Success Center, located in the Commons and at ASC East, provides a range of services. Students may direct questions to [success@floridapoly.edu](mailto:success@floridapoly.edu).

**University Policies**

* **Covid-19 Statement**: Regardless of the mode of course delivery, all Florida Poly students are asked to make a [Campus Commitment](https://floridapoly.edu/coronavirus/campus-commitment.php) demonstrating respect and consideration for themselves or others, and for the people they care about. This Campus Commitment includes monitoring one’s health and seeking medical care when appropriate; wearing face-coverings and respecting social-distancing, especially in the classroom and in gatherings; washing one’s hands frequently (and when not possible using hand-sanitizer); following medical guidance; and participating in keeping shared spaces clean. If you are experiencing any symptom(s) of COVID-19 outlined by the CDC, you must stay home or in your residence hall room and immediately contact the associate director of campus wellness management at 863-874-8599 or email [care@floridapoly.edu](mailto:care@floridapoly.edu).

*Basic rules for in the classroom, IST, and Campus*:

1. You MUST wear your face-covering during class and throughout the building at all times.
2. Absolutely **no eating or drinking** during class.
3. Leave the furniture on its correct floor markings; if the furniture is moved, please return it to those markings.
4. “Take-Two”: Whenever possible, clean your space with a sanitizing wipes (take two) before you start and when you are finished with class.
5. Do not remove sanitizing wipes or hand sanitizers from their set locations—they are put there for everyone.
6. Follow directional signs throughout the buildings and respect appropriate social-distancing.
7. Study hard and engage with all of your courses!

* **Reasonable Accommodations**: Florida Polytechnic University is committed to assisting students with disabilities and offering reasonable accommodations to those with documented eligibility. The Office of Disability Services (ODS) coordinates accommodations for students with disabilities in accordance with the ADA Amendments Act of 2008 (ADAAA), the Americans with Disabilities Act of 1990 (ADA), and Section 504 of the Rehabilitation Act of 1973. Reasonable accommodations are determined on an individual basis through an interactive process between you, ODS, and your instructor(s). If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course and communicate with your instructor about your approved accommodations at your earliest convenience. If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible.

The Office of Disability Services (ODS):

DisabilityServices@floridapoly.edu

(863)874-8770

ASC East building

[ODS website](https://floridapoly.edu/student-affairs/health-wellness/disability-services.php): www.floridapoly.edu > Student Affairs > Health Wellness > Disability Services

* [Accommodations for Religious Observances, Practices and Beliefs](https://floridapoly.edu/wp-content/uploads/FPU-3.009-Reasonable-Accommodations-6.22.17.pdf)
* **Title IX**: Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. It is important for you to know that there are resources available if you or someone you know needs assistance. You may speak to your professor, but your professors have an obligation to report the incident to the Title IX Coordinator. It is an educational goal that you feel able to share information related to your life experiences in classroom discussions and in one-on-one meetings. However, it is requirement for university employees to share information with the Title IX Coordinator regarding disclosure. However, please know that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University [Ombuds Office](https://floridapoly.edu/ombuds/index.php), BayCare’s Student Assistance Program, 1-800-878-5470 and locally within the community at [Peace River Center](https://www.peacerivercenter.org/services/victim-services/), 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment.
* **Academic Integrity**: All students must commit to the highest ethical standards in completion of all academic pursuits and endeavors, whether in classroom or online environments: [Academic Integrity](https://floridapoly.edu/wp-content/uploads/2017/07/FPU-5.005-Academic-Integrity-7.29.14.pdf)

***Important Dates***

August 20 Th Classes Begin

September 7 M Labor Day Holiday - No Classes

November 11 W Veteran’s Day Holiday (Observed) - No Classes

November 25-27 W-F Thanksgiving Holiday Break - No Classes

November 18 W Withdrawal Without Academic Penalty (W assigned)

December 3 Th Last Day of Classes

December 4-5 F-Su Reading Days - No Classes

December 7-11 M-F Final Exams

December 16 W Final Grades Available Online

***Sample Rubric for Report and Presentations***

The­ final presentations and reports will be evaluated using the rubrics.

**Report Rubric**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Objective** | **Category** | **Below Expectations** | **Weak** | **Average** | **Good** | **Excellent** |
| **Score** | **1** | **2** | **3** | **4** | **5** |
| Students can write professional quality documents | Introduction | Opening is off-topic and inappropriate to the purpose, not concise and no clarity | Opening is somewhat related to the topic and appropriate to the purpose but is not concise and clear | Opening is related to the topic and appropriate to the purpose. Somewhat clear and concise | Opening is related to the topic and appropriate to the purpose. Clear and concise | Strong opening that is clear and concise |
| Organization | Disorganized; incorrect format; unclear direction | Somewhat organized; incorrect format; unclear direction | Organized; correct format; unclear direction | Organized; correct format; clear direction | Correct formatting, strong clarity and organization in the development of main points |
| Literature Review | Does not present information from any source | Presents information from irrelevant sources representing limited points of view/approaches | Presents information from relevant sources representing limited points of view/approaches | Presents in-depth information from relevant sources representing limited points of view/approaches | Synthesizes in-depth information from relevant sources representing limited points of view/approaches |
| Analysis | Incorrect, Irrelevant, no supporting evidence | Correct, irrelevant, no supporting evidence | Correct, relevant, no supporting evidence | Relevant and correct with supporting evidence | Relevant, correct, complete, incorporates innovative insights |
| Next Steps | Missing or content does not support conclusion | Conclusion irrelevant to the findings | Conclusion somewhat relevant to the findings | Conclusion relevant to the findings | Strong conclusion that is clear, complete and compelling |
| Grammar & Spelling | Uses language that often impedes meaning due to errors | Uses language that often sometimes meaning due to errors | Uses language that generally conveys meaning to readers with clarity, although writing includes some errors | Uses straightforward language that conveys meaning to readers. Language has few errors | Uses graceful language that communicates meaning to readers with clarity and fluency and is virtually error free |
| Reference Style (APA) | Did not follow APA style | Numerous errors in APA style, did not cite sources correctly, formatting issues | Some errors in APA style, cited correctly but formatting issues persist | Minimum errors in style and formatting but does not detract from readability | No errors in APA style |
|  |  |  |  |  |  |

**Presentation Rubric**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Objective** | **Category** | **Below Expectations** | **Weak** | **Average** | **Good** | **Excellent** |
| **Score** | **1** | **2** | **3** | **4** | **5** |
| Students can demonstrate mastery of communication technology | Use of Media | Lack of media detracts from the presentation objective | Misuse of media that detracts from the presentation objective | Use of media barely supports and contributes to the presentation objective | Use of media supports and contributes to the presentation objective | Use of media supports, clarifies and reinforces the presentation objective |
| Quality of Slides | Very poor quality. Not enough or too much colors, fonts and animations that detract from project objective | Poor quality. Not enough or too much colors, fonts and animations that detract from project objective | Fonts, colors and animations barely support the presentation objective | Fonts, colors and animations support the presentation objective | Fonts, colors and animations support, clarify and reinforce the presentation objective |
| Students can develop and deliver a compelling oral talk with relevant facts and information | Opening statement | Opening is off-topic and inappropriate to the purpose, not concise and no clarity | Opening is somewhat related to the topic and appropriate to the purpose but is not concise and clear | Opening is related to the topic and appropriate to the purpose. Somewhat clear and concise | Opening is related to the topic and appropriate to the purpose. Clear and concise | Strong opening that is clear and concise |
| Organization | Disorganized; incorrect format; unclear direction | Somewhat organized; incorrect format; unclear direction | Organized; correct format; unclear direction | Organized; correct format; clear direction | Correct formatting, strong clarity and organization in the development of main points |
| Literature Review | Does not present information from any source | Presents information from irrelevant sources representing limited points of view/approaches | Presents information from relevant sources representing limited points of view/approaches | Presents in-depth information from relevant sources representing limited points of view/approaches | Synthesizes in-depth information from relevant sources representing limited points of view/approaches |
| Analysis | Incorrect, Irrelevant, no supporting evidence | Correct, irrelevant, no supporting evidence | Correct, relevant, no supporting evidence | Relevant and correct with supporting evidence | Relevant, correct, complete, incorporates innovative insights |
| Next Steps | Missing or content does not support conclusion | Conclusion irrelevant to the findings | Conclusion somewhat relevant to the findings | Conclusion relevant to the findings | Strong conclusion that is clear, complete and compelling |
| Timing | Presentation is too short, insufficient coverage of material | Presentation is too long. Unable to cover all the material | Able to cover all the material within five extra minutes | Utilizes allotted time to provide sufficient coverage of material | Well-paced coverage of material within the allotted time |
| Students can deliver an oral talk with clarity and appropriate poise | Delivery Techniques | Does not participate in the oral presentation | Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) detract from the understandability of the presentation, and speaker appears uncomfortable. | Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation understandable, and speaker appears tentative. | Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation interesting, and speaker appears comfortable. | Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation compelling, and speaker appears polished and confident. |