**Instructor:** William B. Wood, PMP, CSU Denver Metro South,  [WBWood.CSU@Comcast.net](mailto:WBWood.CSU@Comcast.net) or [Bill.Wood@ColoState.edu](mailto:Bill.Wood@ColoState.edu)

**Office Hours:** Tues, 1:00-5:00 PM Mountain Time; by appointment

**Book:** *Systems Engineering and Analysis*, Fifth Edition, Blanchard and Fabrycky

**Grading and Exams:** (Tentative)
- Midterm Exam 25%
- Final Exam 25%
- Project & Presentation 25% (may be Individual or Team)
- Homework Assignments 25%

**Course Schedule:** Homework will usually be assigned every week. In addition there will be a project. You are expected to work on all these problems yourself (or within your team if indicated), but *reasonable* collaboration on understanding methods in the text is allowed. **Use of solution sets from any source is not allowed!** Class presentations each the project will be required.

**Course Description:** Develop a conceptual understanding of the systems engineering life-cycle process and familiarity with analytical techniques used in that process. Investigate concepts of reliability and robustness, and rigorous tools for analysis and design with them in mind. Real-world experience and case studies working with a system through all phases of the system design process.

**Student Learning Objective:** Successful students will develop a conceptual understanding of the systems engineering life-cycle process and its components. They will develop analytical skills utilizing robust techniques and optimization-based methods. They will also broaden their perspective with the real-world experience of working with a system through all phases of the system design process.

**Main Topics:**
1. Introduction and Background
2. Conceptual & Preliminary System Design
3. Detail Design and Development; and System Test, Evaluation & Validation
4. Alternatives and Models in Decisions Making
5. Models for Economic Evaluation
6. Optimization in Design and Operations
7. Influential SE Organizations, Elements & Concepts (Fall, Denver)
   - [Overview of Classical Numerical Optimization (Spring, Ft. Collins)]
8. Review of Chapters 1-9 and Appendices
9. Queuing Theory and Analysis; and Control Concepts and Methods
10. Design for Reliability
11. Design for Maintainability
12. Design for Logistics, Supportability, Producibility, Disposability, Sustainability and Affordability