COURSE SYLLABUS

Course Prefix/Number: 
BCN 4431

Course Title: 
Structures I

Course Credit Hours: 3

Instructor Name and Contact Information: 
Mark Spitznagel, PE, CGC 
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Prerequisites or Co-Requisites: 
Statics, Strengths and Materials, General Physics I, and Trigonometry

Course Description: 
Structures involves the analysis and design of structural elements for buildings, bridges and specialized structures that utilize steel and timber. This course includes the evaluation of beam shear, deflection, bearing and moment, plus column behavior, along with their connectors for both steel and timber, including laminates and plywood.

Student Learning Outcomes: 
Engineering design is the process of applying the various technique and scientific principles for the purpose of defining a device, a process, or a system in sufficient detail in order to permit its physical realization. In its broadest sense, the word design implies a decision-making process encompassing the theme of engineering. It's this process that a designer brings into play when making worthwhile decisions dependent upon his working knowledge of the various techniques and scientific principles that assist him in synthesizing a process, or creating a system that will have the desired performance characteristics. With this in mind and upon successful completion of this course, the student will be able to:
1. Identify critical characteristics of both steel and wood as construction materials.
2. Determine sizes of steel and timber members and their connections.
3. Prepare preliminary and detail drawings to facilitate the fabrication and construction of the structural frame.
4. Plot and solve beam and girder problems.
5. Identify types of connectors to include welding, and high strength bolts.
6. Determine working stresses for structural lumber.
7. Design joists, rafters and columns, along with steel base plates.

Topics Covered: 
Topics covered include: review of statics and strength of materials; general procedures for building design; characteristics of wood and steel; criteria for wood and steel design, and safety factors.
**Required Texts:** Simplified Engineering for Architects and Builders

**Grading:**
Attendance, participation, communication - 10%
Homework - 30% (late HW will not be accepted)
Exam 1 - 20%
Exam 2 - 20%
Final Exam - 20%

92-100 = A
90-91 = A-
88-89 = B+
82-87 = B
80-81 = B-
78-79 = C+
72-77 = C
70-71 = C-
68-69 = D+
62-67 = D
60-61 = D-
Below 60 = F

If you are absent due to illness you must notify the instructor by email prior to the start of class. If you are not able to attend class you are still required to submit your homework via email, prior to the beginning of class.

**Attendance is required!** 10% of your grade is based on attendance, attitude and participate and may be earned by perfect attendance.

Homework will be assigned every class and collected the following week. Assigned homework is to be completed on **engineering graph paper** (optional computer printout) and must follow the following guidelines:

- Work on the front of the paper only.
- Write your name, course, date, and assignment at the top of first sheet, and your name only at the top of each additional sheet.
- All sheets of a given assignment must be stapled together in the upper left hand corner.
- A suitable margin should be maintained at both sides and bottom of page.
- Pages should be numbered at the top right-hand corner.
- Neatness will be given definite consideration in assigning your grade.

**ASSISTANCE:**
Students with special needs who require specific examination-related or other course-related accommodations should contact Barbara Fitzpatrick, Director of Disabled Student Services (DSS), dss@uwf.edu, (850) 474-2387. DSS will provide the student with a letter for the instructor that will specify any recommended accommodations.