SysEng 5211/ElecEng 5810/Comp Eng 5310 – Computational Intelligence
Wednesday, 4:00 – 6:30 PM, 260 Toomey Hall
Fall 2020

Instructor: Dr. Steven Corns
                cornss@mst.edu

Office: 230 Engineering Management Building
                573-341-6367

Office hours: 10AM Mondays, Wednesdays, and by appointment, although I will be in
                my office as much as possible from 8AM to 4:00PM (open door policy.)

Required Text – "Fundamentals of Computational Intelligence: Neural Networks, Fuzzy
                Systems, and Evolutionary Computation," by Keller, Liu, and Fogel.
                Available electronically through Missouri S&T library at no charge.

Link to book download - https://ieeexplore-ieee-org.libproxy.mst.edu/book/7547467

You must be logged in to the library to download at this link.

Expected Learning Outcomes –

Provide the student with a basic understanding of the main concepts, tools, and processes
of computational intelligence and how the techniques can be applied to research areas.
Topics include but are not limited to Evolutionary Computation, Fuzzy Systems, and
Neural Networks with consideration for using these techniques in a range of issues from
numerical problem solving to artificial life.

Homework –

No homework is required for this course. In lieu of homework, classroom deliverables
will be a presentation discussing published research in the area of computational
intelligence and a computational intelligence related project. Sample publications will be
provided to the students, although other papers are acceptable pending approval by the
instructor.

The project for the course

Grading –

Overall class grades will be assigned on a percentage scale:

90-100% -- A
80-89%   -- B
70-79%   -- C
60-69%   -- D (undergraduates only)

The point breakdown is as follows:

- Homework (20% each)   40%
- Final Project   50%
- Professionalism   10%

Homework is due by 9AM central time the Friday of the week it is due. It may be turned in during class or left in my mailbox in the EMSE office. The exam scheduled for the Wednesday of the week they appear. Information on the final project will be provided separately. Late work will not be accepted unless arrangements have been made prior to the due date. Exceptions will be made only for emergencies.

Note: A significant portion of the overall grade is determined by your participation, teamwork, and professionalism. Failure to attend the class, participate, submit work in a timely manner, or act in a professional manner can result in a loss of up to one letter grade (10%) on the overall grade for the course.

Student Honor Code and Academic Integrity:
Please take a few minutes to stress the importance of academic integrity in class. Discuss why it should matter to the student, why it matters to you and your discipline, why it matters to Missouri S&T, and why it matters to future employers. Include a statement on your syllabus about the Honor Code developed and endorsed by the Missouri S&T Student Council: the Honor Code can be found at this link: http://stuco.mst.edu/honor-code/. Encourage students to read and reflect upon the Honor code and its emphasis on HONESTY and RESPECT.

Page 30 of the Student Academic Regulations handbook describes the student standard of conduct relative to the University of Missouri System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism or sabotage (http://registrar.mst.edu/academicregs/index.html). Additional guidance for faculty, including the University's Academic Dishonesty Procedures, is available on-line at http://academicsupport.mst.edu. Other informational resources for students regarding ethics and integrity can be found online at http://academicsupport.mst.edu/academicintegrity/studentresources-ai.

S&Tconnect: https://canvas.mst.edu/ (S&Tconnect icon on left toolbar)
S&Tconnect provides an enhanced system that allows students to request appointments with their instructors and advisors via the S&Tconnect calendar, which syncs with the faculty or staff member's Outlook Exchange calendar. S&Tconnect will also facilitate better communication overall to help build student academic success and increase student retention. S&Tconnect Early Alert has replaced the Academic Alert system used by Missouri S&T. If training is needed, please contact Rachel Morris at rachelm@mst.edu or 341-7600.

Accessibility and Accommodations:
It is the university's goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please contact Disability Support Services at (573) 341-6655, dss@mst.edu, or visit http://dss.mst.edu/ for information, or go to mineraccess.mst.edu to initiate the accommodation process.

*Please be aware that any accessible tables and chairs in this room should remain available for students who find that standard classroom seating is not usable.

• LEAD Learning Assistance http://lead.mst.edu

The Learning Enhancement Across Disciplines Program (LEAD) sponsors free learning assistance in a wide range of courses for students who wish to increase their understanding, improve their skills, and validate their mastery of concepts and content in order to achieve their full potential. LEAD assistance starts no later than the third week of classes. Check out the online schedule at http://lead.mst.edu/assist, using zoom buttons to enlarge the view. Look to see what courses you are taking have collaborative LEAD learning centers (bottom half of schedule) and/or Individualized LEAD tutoring (top half of the schedule). For more information, contact the LEAD office at 341-7276 or email lead@mst.edu.

• The Burns & McDonnell Student Success Center

The Student Success Center is a centralized location designed for students to visit and feel comfortable about utilizing the campus resources available. The Student Success Center was developed as a campus wide initiative to foster a sense of responsibility and self-directedness to all S&T students by providing peer mentors, caring staff, and approachable faculty and administrators who are student centered and supportive of student success. Visit the B&MSSC at 198 Toomey Hall; 573-341-7596; success@mst.edu; facebook: www.facebook.com/SandTssc; web: http://studentsuccess.mst.edu/

SysEng 5211/ElecEng 5810/Comp Eng 5310 – Fall 2020 schedule

Week Date	Topic	Due
1 8/26	Course Introduction Computational Intelligence Definitions and Concepts	
2 9/2	Evolutionary Computation	
3 9/9	Fuzzy Systems	
4 9/16	Neural Networks	
5 9/23	Applications I – Numerical Analysis	
6 9/7	Supervised Learning	
7 10/7	Unsupervised Learning	Final Project Proposal
8 10/14	Paper presentations (Homework 1)	Homework 1 Research Paper assignment due
9 10/21	Computational Intelligence and Agents	
10 10/28	Classification and Clustering	
11 11/4	Applications - Engineering	Homework 2
12 11/11	Applications – Non-Engineering	
13 11/18	New areas in Computational Intelligence	
14 11/25	Fall Break	
15 12/2	Project Presentations	Final Project Presentations
16 12/9	Project Presentations	Final Project Write-ups Due

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