



CSE4403/6002 3.0 Introduction to Soft Computing
 Tuesdays, Thursdays 10:00-11:20 – CB 122
 Fall Semester, 2013

Soft Computing Course Calendar (1 July 2013 version)
 Course Director: Nick Cercone (nick@cse.yorku.ca)

- Part I – Fuzzy Sets and Fuzzy Logic
- Part II – Rough Sets
- Part III – Neural Networks
- Part IV – Evolutionary Computing
- Part V – Probabilistic Reasoning
- Part VI – Applications, Intelligent Systems design, Hybrid Systems, Expert Systems
- Part VII – Student Project Presentations

#	Date	Title	Asgn's
Part I – Fuzzy Sets and Fuzzy Logic			
1	10 Sep 13	Course Introduction, Fuzzy Sets & Fuzzy Logic Course information: overview of course; logistics and administrivia, textbook and other main references, evaluation scheme, academic honesty policy, tentative course schedule; resources Introduction to logic and representation. Introduction to fuzzy sets and fuzzy logic. Handouts: look on CSE WIKI for material under Handouts – week 1. Files: Lecture 1 notes (ppt).	A0 out
2	12 Sep 13	More Fuzzy Logic Background and Applications of Fuzzy Logic Background material on fuzzy logic; applications of fuzzy logic Handouts: look on CSE WIKI for material under Handouts – week 1. Files: Lecture 2 notes (ppt).	A0 due
3	17 Sep 13	Finish Fuzzy Logic and Begin Rough Sets Why use Fuzzy Logic. How does it work? How is Fuzzy Logic used? Linguistic variables. Examples. Rough sets, basic concepts, decision tables, dependency of attributes, dispensable and indispensable, reducts and core. Handouts: look on CSE WIKI for material under Handouts – week 2 & 3. Files: Lecture 3 notes (ppt).	
Part II – Rough Sets			
4	19 Sep 13	Rough Sets Membership functions, properties of rough membership. Rough sets and fuzzy sets. Examples.	

		Handouts: look on CSE WIKI for material under Handouts – week 2 & 3. Files: Lecture 4 notes (ppt) .	
5	24 Sep 13	Rough Sets More Rough Sets. Various reducts and Rough Sets Applications Handouts: look on CSE WIKI for material under Handouts – week 2 & 3. Files: Lecture 5 notes (ppt) .	A1 out
Part III – Neural Networks			
6	26 Sep 13	Neural Networks Neural Networks. Questions. Motivation. Application. Introduction Handouts: look on CSE WIKI for material under Handouts – week 3 & 4. Files: Lecture 6 notes (ppt) .	
7	1 Oct 13	Neural Networks Neural Networks. Fundamentals. Framework for distributed processing. Network topologies. Training of ANN's. Notation. Perceptron. Back Propagation Handouts: look on CSE WIKI for material under Handouts – week 3 & 4. Files: Lecture 7 notes (ppt) .	
8	3 Oct 13	Neural Networks Finish Neural Networks. Recurrent networks and examples. Handouts: look on CSE WIKI for material under Handouts – week 3 & 4. Files: Lecture 14 notes (ppt) . Lectures 14a-14e videos	
Part IV – Evolutionary Computing			
9	8 Oct 13	Evolutionary Computing Evolutionary computing is soft computing. It is also: Natural computing, Optimization search, Heuristics, Local search Handouts: look on CSE WIKI for material under Handouts – week 5 & 6. Files: Lecture 8 notes (pdf) .	
10	10 Oct 13	Evolutionary Computing Genetic Algorithms & Evolution Strategies Handouts: look on CSE WIKI for material under Handouts – week 5 & 6. Files: Lecture 9 notes (pdf) .	A1 Due
11	15 Oct 13	Evolutionary Computing Evolutionary & Genetic Programming Handouts: look on CSE WIKI for material under Handouts – week 5 & 6. Files: Lecture 10 notes (pdf) .	
Part V – Probabilistic Reasoning			
12	22 Oct 13	Probabilistic Reasoning Probabilistic reasoning, inference, deduction, inductive, abductive. Formal logic, probability theory Handouts: look on CSE WIKI for material under Handouts – week 6 & 7.	

		Files: Lecture 11 notes (pdf) .	
13	24 Oct 13	Probabilistic Reasoning Bayesian Networks Handouts: look on CSE WIKI for material under Handouts – week 6 & 7. Files: Lecture 12 notes (pdf) .	A2 out
14	29 Oct 13	Probabilistic Reasoning More Bayesian Networks Handouts: look on CSE WIKI for material under Handouts – week 6 & 7. Files: Lecture 13 notes (pdf) .	
	30 Oct -03 Nov, 2013	Co-Curricular Days (Reading Week)	
Part VI – Applications, Intelligent Systems Design, Hybrid Systems, Expert Systems			
15	5 Nov 13	Web Intelligence, Brain Informatics and Granular Computing description Handouts: look on CSE WIKI for material under Handouts – week 8. Files: Lecture 15 notes (ppt) .	
16	7 Nov 13	Granular Computing description Handouts: look on CSE WIKI for material under Handouts – week 8. Files: Lecture 16 notes (ppt) .	
17	12 Nov 13	Applications, Intelligent Systems design, Hybrid Systems description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 17 notes (ppt) .	
18	14 Nov 13	Applications, Intelligent Systems design, Hybrid Systems – A Bayesian System description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 18 notes (ppt) .	
19	19 Nov 13	Applications, Intelligent Systems design, Hybrid Systems – Cancer Tumor Detection description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 19 notes (ppt) .	
20	21 Nov 13	Applications, Intelligent Systems design, Hybrid Systems description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10.	

		Files: Lecture 20 notes (ppt).	
21	26 Nov 13	Applications, Intelligent Systems design, Hybrid Systems description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 21 notes (ppt). Files: Lecture 19 (ppt).	A2 Due
Part VII - Student Project Presentations			
22	28 Nov 13	Student Project Presentations	
	3 Dec 13	Study Day	
23	5 Dec 13	Student Project Presentations & Course Projects Due	
	6 Dec 13	Fall Classes End	
	10-23 Dec 13	Fall Exams	