CSE4403 3.0 & CSE6002E
Soft Computing
Insructor: Nick Cercone – 3050 CSEB – nick@cse.yorku.ca
Tuesdays,Thursdays 10:00-11:30 – Farquharson Life Sciences 045.
Winter Semester, 2011

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Soft Computing Course Calendar (3 January 2010 version)
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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
Part VII – Student Presentations

#	Date	Title	Asgn's
		Part I – Fuzzy Sets and Fuzzy Logic	
1	4 Jan 11	**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	6 Jan 11	**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	11 Jan 11	**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).	
4	13 Jan 11	**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	18 Jan 11	**Rough Sets**	**A1 out**
		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).	
6	20 Jan 11	**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	25 Jan 11	**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	27 Jan 11	**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).	
9	1 Feb 11	**Evolutionary Computing**	**A1 Due**
		Genetic Algorithms & Evolution Strategies Handouts: look on CSE WIKI for material under Handouts – week 5 & 6.	
		Files: Lecture 9 notes (pdf).	
10	3 Feb 11	**Evolutionary Computing**	
		Evolutionary & Genetic Programming	
		Handouts: look on CSE WIKI for material under Handouts – week 5 & 6.	
		Files: Lecture 10 notes (pdf).	
11	8 Feb 11	**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).	
12	10 Feb 11	**Probabilistic Reasoning**	**A2 out**
		Bayesian Networks	
		Handouts: look on CSE WIKI for material under Handouts – week 6 & 7.	
		Files: Lecture 12 notes (pdf).	
13	15 Feb 11	**Probabilistic Reasoning**	
		More Bayesian Networks	

		Handouts: look on CSE WIKI for material under Handouts – week 6 & 7. Files: Lecture 13 notes (pdf).	
14	17 Feb 11	**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).	
	19-25 Feb	**Reading Week**	
15	1 Mar 11	**Granular Computing** description Handouts: look on CSE WIKI for material under Handouts – week 8. Files: Lecture 15 notes (ppt).	
16	3 Mar 11	**Granular Computing** description Handouts: look on CSE WIKI for material under Handouts – week 8. Files: Lecture 16 notes (ppt).	
17	8 Mar 11	**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	10 Mar 11	**Applications, Intelligent Systems design, Hybrid Systems** description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 18 notes (ppt).	
19	15 Mar 11	**Applications, Intelligent Systems design, Hybrid Systems** description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 19 notes (ppt).	
20	17 Mar 11	**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	22 Mar 11	**Applications, Intelligent Systems design, Hybrid Systems** description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 21 notes (ppt).	**A2 Due**

		Files: Lecture 19 (ppt).	
	Student Project Presentations		
22	24 Mar 11	**Student Project Presentations**	
23	29 Mar 11	**Student Project Presentations**	
24	31 Mar 11	**Student Project Presentations**	
25	5 Apr 11	**Wrap-up and Course Review**	
	18 Apr 11	**Projects Due**	