

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

Soft Computing Course Calendar (3 January 2010 version)

- 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	<p>Rough Sets</p> <p>More Rough Sets. Various reducts and Rough Sets Applications</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 2 & 3.</p> <p>Files: Lecture 5 notes (ppt).</p>	A1 out
6	20 Jan 11	<p>Neural Networks</p> <p>Neural Networks. Questions. Motivation. Application. Introduction</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 3 & 4.</p> <p>Files: Lecture 6 notes (ppt).</p>	
7	25 Jan 11	<p>Neural Networks</p> <p>Neural Networks. Fundamentals. Framework for distributed processing. Network topologies. Training of ANN's. Notation. Perceptron. Back Propagation</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 3 & 4.</p> <p>Files: Lecture 7 notes (ppt).</p>	
8	27 Jan 11	<p>Evolutionary Computing</p> <p>Evolutionary computing is soft computing. It is also: Natural computing, Optimization search, Heuristics, Local search</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 5 & 6.</p> <p>Files: Lecture 8 notes (pdf).</p>	
9	1 Feb 11	<p>Evolutionary Computing</p> <p>Genetic Algorithms & Evolution Strategies</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 5 & 6.</p> <p>Files: Lecture 9 notes (pdf).</p>	A1 Due
10	3 Feb 11	<p>Evolutionary Computing</p> <p>Evolutionary & Genetic Programming</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 5 & 6.</p> <p>Files: Lecture 10 notes (pdf).</p>	
11	8 Feb 11	<p>Probabilistic Reasoning</p> <p>Probabilistic reasoning, inference, deduction, inductive, abductive. Formal logic, probability theory</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 6 & 7.</p> <p>Files: Lecture 11 notes (pdf).</p>	
12	10 Feb 11	<p>Probabilistic Reasoning</p> <p>Bayesian Networks</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 6 & 7.</p> <p>Files: Lecture 12 notes (pdf).</p>	A2 out
13	15 Feb 11	<p>Probabilistic Reasoning</p> <p>More Bayesian Networks</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 6 & 7.</p>	

		Files: Lecture 13 notes (pdf) .	
14	17 Feb 11	<p>Neural Networks Finish Neural Networks. Recurrent networks and examples.</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 3 & 4.</p> <p>Files: Lecture 14 notes (ppt). Lectures 14a-14e videos</p>	
	19-25 Feb	Reading Week	
15	1 Mar 11	<p>Web Intelligence, Brain Informatics and Granular Computing description</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 8.</p> <p>Files: Lecture 15 notes (ppt).</p>	
16	3 Mar 11	<p>Granular Computing description</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 8.</p> <p>Files: Lecture 16 notes (ppt).</p>	
17	8 Mar 11	<p>Applications, Intelligent Systems design, Hybrid Systems description</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 9 & 10.</p> <p>Files: Lecture 17 notes (ppt).</p>	
18	10 Mar 11	<p>Applications, Intelligent Systems design, Hybrid Systems – A Bayesian System description</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 9 & 10.</p> <p>Files: Lecture 18 notes (ppt).</p>	
19	15 Mar 11	<p>Applications, Intelligent Systems design, Hybrid Systems – Cancer Tumor Detection description</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 9 & 10.</p> <p>Files: Lecture 19 notes (ppt).</p>	
20	17 Mar 11	<p>Applications, Intelligent Systems design, Hybrid Systems description</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 9 & 10.</p> <p>Files: Lecture 20 notes (ppt).</p>	
21	22 Mar 11	<p>Applications, Intelligent Systems design, Hybrid Systems description</p> <p>Handouts: look on CSE WIKI for material under Handouts – week 9 & 10.</p> <p>Files: Lecture 21 notes (ppt).</p> <p>Files: Lecture 19 (ppt).</p>	A2 Due

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