

Interdisciplinary and Group Processes

HCCS MSc Course Outline

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Term II, Spring 2010

Objectives

The aim of this course is to introduce theoretical and practical concerns involving group process, communication and interdisciplinarity. It will aim to integrate topics covered in the other courses of the HCCS MSc.

Specific aims are to:

- Understand and reflect on theories and practices of group processes, especially team working, communication and collaboration
- To carry out a range of group projects, so as to put theory into practice

Week	Topic
1	About the Course
2	Interdisciplinarity
3	Human Factors
4	Collaboration and Group Theory
5	Leadership and Group Organisation
6	Communication and Meetings
7	Reflective Practice and Creativity
8	Tacit Knowledge and Organisational Learning
9	Working Environment
10	Project Presentation

Course Organisation

There will be ten two-hour seminars starting in week 1. The seminars will generally be divided between weekly topic discussion and time dedicated to group project management and evaluation.

All core course readings will be provided.

Assignments

The course assignment is a portfolio consisting of three pieces of coursework and a tutor assessment based on class interaction and participation.

The three pieces of coursework are:

1. A **1000 word written report** (30% assessed marks):
 - “What is Interdisciplinarity?”

Due: Monday Week 7 of Spring Term by 4pm (Monday 22nd February 2010)
2. A **group presentation in class** (30% assessed marks)
 - Based on the development of an alternative website for the HCCS course. The project involves all students taking part in designing Web Pages for the site, including mini-student profiles for each person. Each student will need to present an overview of their contribution to the project and state how they collaborated with the others. The presentations should include a demonstration of the website in action, and total about 5-10 minutes per student.

Due: Thursday Week 10 of Spring Term in class (Thursday 18th March 2010)
3. A **1400 word critical personal document** (40% assessed marks):
 - Detailing the experience and lessons learned in working in collaboration with others on the alternative HCCS website project. It should be referenced in relation to course readings and address such issues as working with others in a group, leadership and group decision making processes, significant influences on group processes, sub-groups formed for sub-tasks, time-management, how the web and different resources were utilised for research, how the different team-member skills helped to produce the finished project, and the various modes of in-group communication that were employed. You should draw on information recorded in your personal project diaries and from other sources. Each student will draw on their own experiences in order to write an overview of their contribution to the project and how they collaborated with others.

Due: Monday Week 1 of Summer Term by 4pm (Monday 19th April 2010)

Written assignments can be submitted by email to j.m.hunt@sussex.ac.uk (confirmation of receipt will be provided), or handed in to the school office.

Seminar Organisation

Week 1 – About the Course

This session will introduce the course aims and assignments.

Further Reading:

1. Light, Ann (2003). 'Crash and Learn'. THES 23 2003.
2. Rogers, Y. (1999). Instilling Interdisciplinarity: HCI from the perspective of cognitive science, SIGCHI Bulletin, 31(3) 4-8.
[<http://mcs.open.ac.uk/yr258/papers/interdisciplinary.pdf>]
3. Pfaff, E. and P. Huddleston (2003). 'Does It Matter if I Hate Teamwork? What Impacts Student Attitudes toward Teamwork.' Journal of Marketing Education, Vol. 25, No. 1, 37-45

Week 2 – Interdisciplinarity

What is interdisciplinarity? Why is it desirable and why is it difficult to achieve? In particular the focus will be on the problem of working together in interdisciplinary software design teams where there are differences of (i) preferred method, (ii) terminology and (iii) expertise in doing design work. The focus will be on these problems in practice and how they can be overcome.

This seminar will also incorporate summary presentations of the course reading.

Reading Material:

1. Kim, S. (1990). 'Interdisciplinary Cooperation.' In B. Laurel (ed.), *The art of human-computer interface design*, p31-45.
2. Rogers, Y. Scaife, M. and Rizzo, A. (2005) 'Interdisciplinarity: an Emergent or Engineered Process?' In S. Derry, C.D. Schunn and M.A. Gernsbacher (Eds.) *Interdisciplinary Collaboration: An Emerging Cognitive Science*. LEA, 265-286.
[<http://mcs.open.ac.uk/yr258/papers/csrp556.pdf>].
3. Orchard, C., Curran, V, & Kabene, S. (2005). Creating a culture for interdisciplinary collaborative professional practice. *Medical Education On-line*, 10(11), 1-13.

Further Reading:

4. Mariano, Carla (1989). 'The Case for Interdisciplinary Collaboration,' *Nursing Outlook*, November/December 1989.
5. Van den Besselaar, Peter, & Heimeriks, Gaston (2001). 'Disciplinary, Multidisciplinary, Interdisciplinary – Concepts and Indicators.' Paper for the 8th conference on Scientometrics and Informetrics (ISSI2001), Sydney, Australia, 16-20 July 2001.
6. Nissani, M. (1995). 'Fruits, Salads, and Smoothies: A Working Definition of Interdisciplinarity.' *Journal of Educational Thought* 29: 119-126 (1995).
[<http://www.is.wayne.edu/mnissani/PAGEPUB/SMOOTHIE.htm>]

Week 3 – Human Factors

In these seminars students will be introduced to issues concerned with people factors and software engineering. This seminar will also incorporate summary presentations of the course reading.

In week 3 the students will also be introduced to their group assignment to develop an alternative website for new students to find out more about the HCCS course. The students need to decide how to distribute the workload, as well as coordinate and collate the material.

Reading Material:

1. Bryant, Anthony (2000). 'Metaphor, Myth and Mimicry: The Bases of Software Engineering.' *Annals of Software Engineering 10* (2000), 273-292.
2. Rönkkö, K. (2007). 'Interpretation, interaction and reality construction in software engineering: An explanatory model.' *Information and Software Technology Volume 49, Issue 6, June 2007, Pages 682-693* Qualitative Software Engineering Research.

Further Reading:

1. Marshall, L. & Webber, J. (2000). 'Gotos Considered Harmful and Other Programmers' Taboos.' Proceedings of the Psychology of Programming Interest Group Workshop 2000.
2. Janet Low, Jim Johnson, Pat Hall, Fiona Hovenden, Janet Rachel, Hugh Robinson, Steve Woolgar. (1996). 'Read this and change the way you feel about software engineering.' *Information and Software Technology Journal 38, Feb 1996, 77-87.*
3. Sharp, Helen, Robinson, Hugh, & Woodman, Mark (2000). 'Software Engineering: Community and Culture,' *IEEE Software, January/February 2000.*
4. Robinson, H., Hall, P., Hovenden, F. and J. Rachel (1998). 'Postmodern Software Development.' *The Computer Journal 1998 41(6): 363-375.*
5. Segal, J. (2005). 'When software engineers met research scientists: a case study.' *Empirical Software Engineering, 10* (4).
6. Naur, P. (1985). 'Program as theory building.' *Microprocessing and Microprogramming 15, North Holland Pub. Co., 253-261.*

Week 4 – Collaboration and Group Theory

In week 4 the students will discuss issues concerned with group processes, team working, group dynamics and group size. This seminar will also incorporate summary presentations of the course reading.

The session will also include time for students to collaborate and coordinate their work on the group project.

Reading Material:

1. DeMarco, T. & Lister, T. (1999). 'Growing Productive Teams.' *Peopleware*. New York: Dorset House, p123-139, p150-156.
2. Brooks, F.P. (1995). 'The Mythical Man Month.' *The Mythical Man Month*. Addison Wesley, p13-28 and Brooks, F.P. (1995). 'The Surgical Team.' *The Mythical Man Month*. Addison Wesley, p29-41.
3. Coolican, H. (2001). 'Group Behaviour in Organisations.' *Psychology in Practice: Organisations*. OCR, London: Hodder Arnold, p39-54.

4. Stempfle, J., Hübner, O. & P. Badke-Schaub (2001). 'A Functional Theory of Task Role Distribution in Work Groups.' *Group Processes & Intergroup Relations*, Vol. 4, No. 2, 138-159.

Further Reading:

5. Williams, L., Shukla, A., Antón, A. (2004). 'An Initial Exploration of the Relationship Between Pair Programming and Brook's Law', *Agile Development Conference 2004*, pp. 11-20.
[<http://collaboration.csc.ncsu.edu/laurie/Papers/brooks.pdf>]
6. Rosen, C.C.H. (2005). 'The Influence of Intra-Team Relationships on the Systems Development Process: A Theoretical Framework of Intra-Group Dynamics,' *Proceedings of the Psychology of Programming Interest Group Workshop 2005*.
7. Sutcliffe, A. (2005). 'Applying small group theory to analysis and design of CSCW systems.' *Proceedings of the 2005 Workshop on Human and Social Factors of Software Engineering (HSSE '05)*, St. Louis, Missouri, 1-6. ACM Press, New York, NY.
8. Langewiesche, W. (2003). Columbia's Last Flight. *The Atlantic Monthly*, November 2003, p58-87.
9. Parrish, A., Smith, R., Hale, D. and J. Hale (2004). 'A field study of developer pairs: productivity impacts and implications.' *Software, IEEE 2004*, 21(5).

Week 5 – Leadership and Group Organisation

In week 5 the students will be introduced to issues concerned with group structure, self-organisation and leadership issues. This seminar will also incorporate summary presentations of the course reading.

The session will also include time for students to collaborate and coordinate their work on the group project.

Reading Material:

1. Coolican, H. (2001). 'Leadership and Management.' *Psychology in Practice: Organisations*. OCR, London: Hodder Arnold, p69-82.
2. Weber, M. D., and Karman, T. A. (1991). 'Student group approach to teaching using Tuckman model of group development.' *Advan. Physiol. Edu.* 261: 12S-16S.
3. Hogg, M.A., Abrams, D., Otten, S. & Hinkle, S. (2004). 'The Social Identity Perspective: Intergroup Relations, Self-Conception, and Small Groups.' *Small Group Research 2004 35*: 246-276.

Further Reading:

4. Tuckman, B.W. (1965) 'Developmental sequence in small groups.' *Psych. Bull.* 63: 384-399. [<http://www.mph.ufl.edu/events/seminar/Tuckman1965DevelopmentalSequence.pdf>]
5. Kravitz, D.A. and Martin, B. (1986). 'Ringelmann rediscovered: The original article.' *Journal of Personality and Social Psychology*, 50, 936-941.
6. Tabaka, J. (2006). 'What are Collaborative Teams?.' *Collaboration Explained: Facilitation Skills for Software Project Leaders*. NJ: Pearson Education, p23-44.
7. Mantei, M. (1981). 'The effect of programming team structures on programming tasks.' *Communications of the ACM*. Vol. 24, No. 3, pp. 106-113.
8. Rooke, DE. & Torbert, W.R. (2005). 'Seven Transformations of Leadership.' *Harvard Business Review*, April 2005.

9. Stahl, G. (2006). 'Can Collaborative Groups Think?.' *Group Cognition*. London: MIT Press, P385-408.
10. Schein, E.H. (2004). 'How Culture Emerges in New Groups.' *Organizational Culture and Leadership*. CA: Jossey Bass, p63-84.
11. Rosen, C.C.H. (2005). 'The Influence of Intra-Team Relationships on the Systems Development Process: A Theoretical Framework of Intra-Group Dynamics,' *Proceedings of the Psychology of Programming Interest Group Workshop 2005*.
12. Langfred, C. (2004). 'The negative effects of high trust and autonomy in self-managing teams.' *Academy of Management Journal*, 47(3): 385-399.
13. Madlock, P. (2008). 'The Link Between Leadership Style, Communicator Competence, and Employee Satisfaction.' *Journal of Business Communication*, Vol. 45, No. 1, 61-78.

Week 6 – Communication and Meetings

In this seminar the focus will be on the role of group communication with particular regard to team working, group dynamics and meeting management. In these seminars students will be introduced to the issues concerning communication within a design team in which the members are from different disciplines such as software engineering, sound design, graphic design and marketing. How do new professionals become enculturated into their profession and learn to 'talk the talk' like their more experienced colleagues? To what extent do disciplines and professions exclude others through the use of slang, jargon, techspeak and other forms of discipline specific linguistic register? How can communication within teams and organisations break down? This seminar will also incorporate summary presentations of the course reading.

The session will also include time for students to collaborate and coordinate their work on the group project.

Reading Material:

1. Coolican, H. (2001). 'Interpersonal Communication Systems.' *Psychology in Practice: Organisations*. OCR, London: Hodder Arnold, p55-68.
2. Shrager, J. (2007). 'The evolution of BioBike: Community adaptation of a biocomputing platform.' *Studies in History and Philosophy of Science*, 38, 642–656
3. Jay, A. (1976). 'How to run a meeting.' *Harvard Business Review*, 54(2), 43-57.

Further Reading:

4. Tabaka, J. (2006). 'Defining Project Collaboration Events.' *Collaboration Explained: Facilitation Skills for Software Project Leaders*. NJ: Pearson Education, p45-70.
5. Wittenbaum, G. M. (2003). 'Putting communication into the study of group memory.' *Human Communication Research*, 29, 616-623.
6. Miranda, S.M. and Bostrom, R.P. (1999). 'Meeting Facilitation: Process Versus Content Interventions.' *Journal of Management Information Systems* Vol. 15 No. 4, Spring 1999 pp. 89 - 114.
7. Kraut, R.E., Fish, R., Root, R.W., & Chalfonte, B. (1990). 'Informal Communication in Organisations: Form, Function and Technology.' In Oskamp, S. and Spacaman, S. (eds.), *People's reactions to technologies in factories, offices and aerospace*, Sage Publications, p145-199.

8. Wong, K. & Tilley, S. (2002). 'Connecting technical communicators with technical developers.' Proceedings of the 20th annual international conference on Computer documentation, Toronto, Ontario, Canada 2002. 258 - 262.
9. Baruch, Y. & Jenkins, S. (2007). 'Swearing at work and permissive leadership culture: When anti-social becomes social and incivility is acceptable.' Leadership & Organization Development Journal, Vol 28, Issue 6, 492-507.
10. Woodcock, Andree & Bartlett, Richard (2005). 'Software Authoring as Design Conversation.' Proceedings of the Psychology of Programming Interest Group Workshop 2005.

Week 7 –Reflective Practice and Creativity

In this seminar the focus will be on personal reflection and evaluation. This seminar will also incorporate summary presentations of the course reading.

The session will also include time for students to collaborate and coordinate their work on the group project.

Reading Material:

1. Robinson, Hugh (2001). 'Reflecting on Research and Practice', *IEEE Software*, January/February 2001.
2. Birk, A. Dingsøyr, T. Stalhane, T. (2002). 'Postmortem: never leave a project without it.' *Software, IEEE*, May/Jun 2002.
3. Derby, E. & Larsen, D. (2006). 'Helping Your Team Inspect and Adapt.' *Agile Retrospectives: Making Good Teams Great*. US: Pragmatic Bookshelf, p1-14.

Further Reading:

1. Schön, Donald A. (1991). 'Reflective Practice in the Science-Based Professions' in Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action*, Aldershot: Ashgate Publishing, pp 168-203.
2. Dingsøyr, T., Moe, N.B. & Nytrø, Ø. (2001). 'Augmenting Experience Reports with Lightweight Postmortem Reviews.' *LNCS 2188*, Proceedings of the Third International Conference on Product Focused Software Process Improvement, 167-181.
3. Gallivan M.J. (2003). 'The influence of software developers' creative style on their attitudes to and assimilation of a software process innovation.' *Information & Management, Volume 40*, Number 5, May 2003 , pp. 443-465(23).
4. Hemlin, S., Allwood, C.M. & B.R. Martin (2006). 'Creative Knowledge Environments.' Submitted to *Research Policy*. [http://www.sussex.ac.uk/ceti/documents/ben_martin_spru_creative_knowledge_environments_article1.pdf].
5. Leonard, D. & Sensiper, S. 'The Role of Tacit Knowledge in Group Innovation,' California. *Management Review*, Vol. 40/3 (Spring 1998): 112-132.

Week 8 –Tacit Knowledge and Organisational Learning

In this seminar students will be introduced to the issues concerning tacit knowledge and knowledge management. This seminar will also incorporate summary presentations of the course reading.

The session will also include time for students to collaborate and coordinate their work on the group project.

Reading Material:

1. McInerney, C. (2002). 'Knowledge management and the dynamic nature of knowledge.' *Journal of the American Society for Information Science and Technology*, 53:12, 1009-1018.
2. Thomas, J.C., Kellogg, W.A., Erickson, T. (2001). 'The knowledge management puzzle: human and social factors in knowledge management.' *IBM Systems Journal*, Vol. 40 No.4, pp.863-84.
3. Kim, D. H. (1993). 'The Link Between Individual and Organisational Learning.' *Sloan Management Review (Fall)*: 37-50.

Further Reading:

1. Suchman, Lucy (1995). 'Making Work Visible,' *Communications of the ACM*, September 1995/Vol 38. No 9.
2. Orr, J. (1996). *Talking about machines: an ethnography of a modern job*. Cornell University Press, Ithaca NY. P125-143.
3. Linde, Charlotte (2001). 'Narrative and Social Tacit Knowledge,' *Journal of Knowledge Management* 5 (2), 2001.
4. Kim, Soonhee, & Lee, Hyangsoo (2006). 'The Impact of Organizational Context and Information Technology on Employee Knowledge-Sharing Capabilities.' *Public Administration Review*, May/June 2006.
5. Baskerville, Richard, L., & Land, Frank (2004). 'Socially Self-Destructing Systems.' In Avgerou, C., Ciborra, C. & F. Land (eds.), *The Social Study of Information and Communication Technology: Innovation, Actors and Contexts*, New York: Oxford University Press, pp.263-286.
6. Koutsoukos, G. (2006). 'Mentality Patterns: Capturing and Dealing Explicitly with Recurring Turns of Mind in Software Development.' LNCS 4257, Process Improvement 2006.
7. Fallows, J. (2000). Inside the Leviathan: A short and stimulating brush with Microsoft's corporate culture. *The Atlantic Monthly*, February 2000, p34-38.
8. deYoung, L. (1996) Organisational support for software design. In T. Winograd (ed.). *Bringing Design to Software*, p253-273.

Week 9 –Working Environment

In this session the students will discuss working environments. There will be additional time allocated for students to focus on how to present their group work and how they plan to 'write up' their third assignment (the reflexive document). This seminar will also incorporate summary presentations of the course reading.

The session will also include time for students to collaborate and coordinate their work on the group project.

Reading Material:

1. Coolican, H. (2001). 'Organisational Work Conditions.' *Psychology in Practice: Organisations*. OCR, London: Hodder Arnold, p115-126.
2. Alexander, C. (1999). Patterns 80-83, 146-149, 151. *A Pattern Language: Towns, Buildings, Construction*. London: Dorset House.
3. DeMarco, T. & Lister, T. (1999). 'The Office Environment.' *Peopeware*. New York: Dorset House, p35-50, p62-68, p75-91.

Further Reading:

1. Sharp, H., Robinson, H., Segal, S. & Furniss, D. (2006). 'The Role of Story Cards and the Wall in XP teams: A Distributed Cognition Perspective.' *Proceedings of the conference on AGILE 2006*. P65-75.
2. Becker, F. (2004). 'Knowledge Networks.' *Offices at Work*. CA: Jossey Bass, p11-34.
3. Becker, F. (2004). 'Co-Location.' *Offices at Work*. CA: Jossey Bass, p35-44.

Week 10 – Project Presentations

Each group will be expected to give a presentation of their final website, with each group member contributing at least five minutes of discussion on their contribution to the group project. This presentation will be formally assessed.