Experimental Data Science Project (M) Course Syllabus

Course	Experimental Data Science Project	Faculty	Philosophy
Course code	NCHNUDS501M	Course Leader	Alexandros Koliousis
Credit points	15	US credits	4
FHEQ level	5	Owner	Alexandros Koliousis
Compulsory/optional	Compulsory	Date approved	December 2021
Pre-requisites	None		
Corequisites	None		

WELCOME

DESCRIPTION

This course is an interdisciplinary research project in data science within New College of the Humanities (the College). Via directed study, students will be able to apply standard taught material on computer or data science (mainly, data-driven software development methods, tools, and techniques) by managing a software project that solves a substantial, real-world problem in humanities.

AIMS

The course aims to:

- Develop students' ability to design, implement and evaluate original software for a problem of their choice.

- Develop students' ability to organise a software project from start to finish.

- Develop students' ability to clearly present their ideas, design choices and evaluation methodology to their peers.

- Contribute towards a portfolio to advance a career in data science.

LEARNING OUTCOMES

On successful completion of the course, students should be able to:

KNOWLEDGE AND UNDERSTANDING

K1b   Demonstrate knowledge and understanding of the main principles that underpin the project's disciplines.

K2b   Demonstrate an understanding of established software tools and technologies to solve problems.

K3b   Critically evaluate the appropriateness of different methods and techniques used in related work to the project's areas of study.

SUBJECT-SPECIFIC SKILLS

S1b   Use established methods and techniques to analyse related projects and propose solutions to project-related problems.

S2b   Use established methods and techniques to design and implement a software solution for a project-related problem.

S3b   Demonstrate familiarity with codes of ethics (e.g., code licencing, data use) and codes of practice (e.g., testing) underpinning the development of software solutions.

S4b   Communicate ideas, problems, and solutions to both technical and non-technical audiences.

TRANSFERABLE SKILLS

T1b   Carry out projects using a range of modern, well-proven software tools and libraries to appropriate standards.

T2b   Review related work in their field(s) of study and identify opportunities for integration.

T3b   Show initiative and take responsibility, from understanding the problem to proposing a solution to encouraging peers to share that vision.

LEARNING AND TEACHING PLAN

Teaching and learning strategies for this course will include:

- Group seminars
- Directed study
- Individual supervision, which supports both programming, writing and oral communication skills (typically, 6 hours)
- Individual written feedback
- Online discussion forum

Course information and supplementary materials are available on the College's Virtual Learning Environment (VLE).

Students are required to attend and participate in all the formal and timetabled sessions for this course. Students are also expected to manage their directed learning and independent study in support of the course.

FEEDBACK

Students will receive feedback in a variety of ways: written (including via email correspondence); oral (within office hours or on an *ad hoc* basis) and indirectly, through class discussion.

TEACHING SCHEDULE

Week	Topic
1	Lecture: Introductions Expression of interest from faculty members; and contact of potential supervisor(s) from students
2	Deadline for project allocations
3	Meeting with supervisor(s)
4	Meeting with supervisor(s)
5	Meeting with supervisor(s)
6	Interim report
7	*Reading week*
8	Meeting with supervisor(s)
9	Meeting with supervisor(s)
10	Meeting with supervisor(s)
11	Independent work
12	
13	Submission
14[1]	Presentation

[1]Final week is an opportunity for review and feedback.

Please refer to your CELCAT timetable for exact dates and times of lectures, seminars and tutorials.

ASSESSMENT

SUMMATIVE
Summative assignment briefs can be found on the course page on the College's VLE.

No.	Assignment Type	Weight (%)	Details	Length
AE1	Project	60	Online	Code and up to 5,000 words documentation
AE2	Oral Assessment and Presentation	30		30 minutes
AE3	Participation	10		

REQUIRED READINGS

Reading is to be decided upon between student and supervisor(s), depending on the topic of the chosen dissertation project. The list below – by no means exhaustive! – provides some useful places to start to consider how to go about researching and writing an independent piece of work.

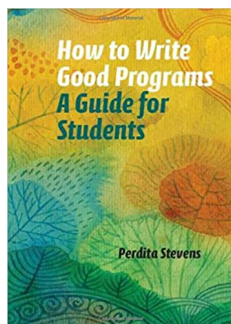## FURTHER & CHALLENGING READINGS
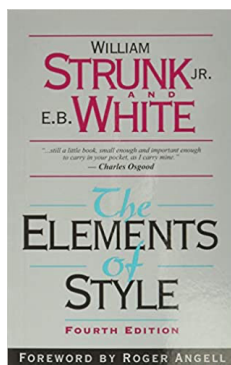
The Elements of Style

By William Strunk Jr. and E. B. White

1999

Pearson

ISBN: 9780205309023

The book is available online.

How to Write Good Programs: A Guide for Students

By Perdita Stevens

2020

Cambridge University Press

ISBN: 9781108789875

The book is available online for download from the publisher via Northeastern's University Library.

APPENDIX 1: COMMON ASSESSMENT MARKING SCHEME

1st Class	Upper 2nd Class	Lower 2nd Class	3rd Class	Fail
100	68	58	48	35
90	65	55	45	20
85	62	52	42	5
80				0
75				
72				

APPENDIX 2: GENERIC GRADE CRITERIA

GENERIC CRITERIA LEVEL 5

KNOWLEDGE AND UNDERSTANDING						
100/90/85/80	**75/72**	**68/65/62**	**58/55/52**	**48/45/42**	**35**	**20/5/0**
Exceptional breadth and depth for work at this level.	Accurate and coherent in breadth, with depth in many areas.	Accurate in breadth, with depth in several areas.	Accurate, with depth in some aspects.	Largely accurate across most areas, with limited depth.	Inaccuracies/omissions in some areas, depth limited.	Substantial inaccuracies, omissions, irrelevancies.
Excellent understanding of concepts/theories (some of them abstract) and/or current practice, and several of their applications and implications.	Thorough understanding of concepts and theories (some of them abstract) and/or current practice, and some of their implications and applications.	Clear understanding of concepts and theories (some of them abstract) and/or practice and some of their implications and applications.	Satisfactory understanding of the relevant concepts, theories and/or practice; Shows some ability to deal with unfamiliar and abstract ideas.	Adequate understanding of the main concepts, theories, and/or practice; Engagement with unfamiliar/ abstract ideas or implications and applications is slight.	Occasional errors in understanding of main concepts, theories and/or practice; Struggles to engage with unfamiliar/ abstract ideas and complexities.	Substantial errors in understanding of concepts, theories and/or practice, or none.

GENERIC CRITERIA LEVEL 5

SUBJECT SPECIFIC						
100/90/85/80	**75/72**	**68/65/62**	**58/55/52**	**48/45/42**	**35**	**20/5/0**
Selects and applies appropriate methods to address/solve complex and often unfamiliar and unpredictable problems.	Applies appropriate methods to address/solve complex issues/problems, some unfamiliar/ Unpredictable.	Uses appropriate given methods to address complex issues/problems, some unfamiliar/ unpredictable.	Uses given methods to analyse issues/problems, some unfamiliar/ unpredictable and complex.	Analysis using given methods is adequate.	Superficial analysis.	Analysis absent or with significant errors/Omissions.
Exceptional judgement in selection, analysis and evaluation of information and application of learning to different contexts.	Exercises judgement in selection, analysis and evaluation of information and application of learning to a different context.	Exercises judgement in selection and analysis of information, with some evaluation, and application of learning in a different context.	Satisfactory selection and analysis of information, with little evaluation; Applies some aspect of learning in a different context.	Limited ability to apply learning to complex, unfamiliar or unpredictable contexts or issues.	Some failure to apply learning complex, unfamiliar or unpredictable issues/contexts.	Fails to apply learning.
Excellent investigative skills generate well-founded and evidenced conclusions/practical solutions.	Thorough investigation generates well-founded conclusions/practical solutions.	Investigation generates well-founded conclusions/ practical solutions.	Investigation generates some conclusions/ practical solutions.	Tendency to description and reliance on familiar/given methods and approaches.	Overly descriptive and reliant on familiar/given material or approaches.	Descriptive and heavily reliant on very restricted range of given/familiar material and approaches, poorly understood.
Explores and evaluates	Explores and deploys information	Locates and organises a wide	Locates and organises a	Locates and organises an	Range of information limited	Range of information

GENERIC CRITERIA LEVEL 5

SUBJECT SPECIFIC						
100/90/85/80	**75/72**	**68/65/62**	**58/55/52**	**48/45/42**	**35**	**20/5/0**
information/ideas from a wide range of sources (may include primary sources).	from a wide range of mostly secondary sources.	range of information/evidence.	satisfactory range of information /evidence, some of it beyond the given/familiar.	acceptable range of information/ evidence mostly from given/ familiar secondary sources.	to the familiar/ given with some errors in organisation.	inadequate and disorganised.
Competence in all the required specialised practical, technical, creative, scholarly or work-related skills. exceeds expectations for this level.	Competence in all the required specialised practical, technical, creative, scholarly or work-related skills, exceeds expectations for this level in some aspects.	Competently uses all the required specialised practical, technical, creative, scholarly or work-related skills, with indications of more developed ability in some areas.	Competently uses all of the required specialised practical, technical, creative, scholarly or work-related skills, with more developed capability in at least one area.	Use of all the required specialised practical, technical, creative, scholarly, or work-related skills is adequate.	Use of some of the required specialised practical, technical, creative, scholarly or work-related skills is inadequate.	Inadequate use of many/all of the required specialised practical, technical, creative, scholarly or work related skills.

GENERIC CRITERIA LEVEL 5

TRANSFERABLE SKILLS						
100/90/85/80	**75/72**	**68/65/62**	**58/55/52**	**48/45/42**	**35**	**20/5/0**
Excellent presentation and organisation of work and lucid communication in all contexts.	Excellent presentation and organisation of work and lucid communication in most contexts.	Presentation and organisation of work appropriate to context and purpose, communication clear.	Satisfactory organisation and presentation of work, communications mostly appropriate to the context/purpose.	Organisation and presentation of work and communications adequate in most contexts; some mistakes/irrelevancies.	Elements of disorganisation/ poor presentation/ poor or inappropriate communication or expression.	Work is disorganised, poorly presented with poor inappropriate communication and expression.
Exemplary referencing/citation.	Extensive, accurate referencing/citation.	Referencing consistent and accurate.	Referencing mostly consistent/accurate.	Some errors in referencing.	Errors/omissions in referencing, or none.	Substantial errors in referencing, or none.
Work demonstrates independence and initiative beyond level expectations, setting objectives and taking responsibility for outcomes.	Work demonstrates independence and some initiative in setting objectives and taking responsibility for outcomes.	Work demonstrates independence in setting some objectives beyond those given and taking responsibility for outcomes.	Work demonstrates satisfactory independence in addressing objectives and taking responsibility for outcomes.	Work demonstrates adequate independence in taking responsibility for outcomes.	Work demonstrates insufficient independence in attempting to address given objectives and taking responsibility for outcomes.	Work fails to address objectives and take responsibility for outcomes.
Evidences developed team-working and indications of leadership ability.	Evidences developed team-working skills.	Evidences a high level of team-working skills.	Evidences team-working and basic leadership skills.	Tendency to rely on support/ direction from others.	Over-reliance on support/direction from others.	Fails to engage in /shows deficiencies in team working.

GENERIC CRITERIA LEVEL 5						
TRANSFERABLE SKILLS						
100/90/85/80	**75/72**	**68/65/62**	**58/55/52**	**48/45/42**	**35**	**20/5/0**
Critical reflection/self-evaluation exceptional for this level.	Reflection and self-evaluation often critical and insightful.	Reflection generates a number of critical insights.	Satisfactory reflection with some insights.	Limited reflection with few insights	Minimal reflection lacks insight.	Reflection inadequate/absent with no insight.