

**PROGRAMME APPROVAL FORM
SECTION 1 – THE PROGRAMME SPECIFICATION**

1. Programme title and designation		MSc Genes, Environment & Development		
2. Final award				
Award	Title	Credit value	ECTS equivalent	Any special criteria
MSc	MSc Genes, Environment and Development in Psychology and Psychiatry	180	90	No
3. Nested award				
Award	Title	Credit value	ECTS equivalent	Any special criteria
N/A	N/A	N/A	N/A	N/A
4. Exit award				
Award	Title	Credit value	ECTS equivalent	Any special criteria
Pg Dip	IoPPN (Genes, Environment and Development in Psychology and Psychiatry)	120	60	N/A
Pg Cert	IoPPN (Genes, Environment and Development in Psychology and Psychiatry)	90	45	N/A
5. Level in the qualifications framework		7		

6. Attendance			
	Full-time	Part-time	Distance learning
Mode of attendance	YES	N/A	N/A
Minimum length of programme	12 months	N/A	N/A
Maximum length of programme	36 months	N/A	N/A

7. Awarding institution/body	King's College London
8. Teaching institution	King's College London
9. Proposing department	Social, Genetic and Developmental Psychiatry (SGDP) Centre, Institute of Psychiatry, Psychology & Neuroscience (IoPPN)
10. Programme organiser and contact	Dr Stuart Ritchie

Details	Email: stuart.ritchie@kcl.ac.uk
11. UCAS code (if appropriate)	N/A
12. Relevant QAA subject benchmark/ Professional, statutory and regulatory body guidelines	There are no specific benchmarks for postgraduate interdisciplinary research on genes, environment and the development of behaviour. However, the programme will be informed by knowledge of the QAA benchmarks for masters programmes in Chemistry and Mathematics, Statistics and Operational Research as well as those for more closely related, but undergraduate level, programmes in Psychology and the Biomedical Sciences.
13. Date of production of specification	February 2012
14. Date of programme review	2018/19

15. Educational aims of the programme

i.e what is the purpose of the programme and general statements about the learning that takes place over the duration of the programme

The programme will provide interdisciplinary postgraduate training in a range of behavioural genetics topics, especially those relevant to psychology and psychiatry, in three compulsory modules (A1 to A3) that will cover the broad range of subject areas and related research methods that are considered fundamental to an understanding of behavioural genetics.

These subject areas will include:

- (i) behavioural genetics
- (ii) twin model fitting
- (iii) genetic epidemiology
- (iv) molecular genetics
- (v) genetic association studies
- (vi) bioinformatics
- (vii) developmental psychology
- (viii) social development
- (ix) psychosis & bipolar disorder
- (x) emotional/behavioural disorders
- (xi) model systems (in vitro and in vivo)

The programme will be taught by the MRC Social, Genetic and Developmental Psychiatry (SGDP) Centre, a department recognised as a world leader in the field of interdisciplinary studies in psychology, psychiatry and behaviour. The programme modules, drawing from different disciplines, will cover the advances that have been made in behavioural genetics during recent years with the growing evidence for the role of genes in shaping our behaviour. Specifically, the programme will focus on how genes and environments shape the development of normal and abnormal human behaviours, including cognitive ability, attention deficit hyperactivity disorder (ADHD), autism spectrum disorders (ASD), anxiety and depression and schizophrenia. In addition to disorder characterisation and presentation of both the genetic, social and other environmental risk factors, the course will cover the molecular mechanisms and the specialised analysis methods relevant to interdisciplinary research in this field. By focusing on current research in this area, the programme will enhance the student's understanding of research methods and place a strong emphasis on enabling students to critically appraise the relevant scientific literature.

Supporting the taught lectures, the students will undertake several practical sessions, covering molecular techniques, statistical genetic methods and bioinformatics. Acquisition of practical training and analytical skills will be obtained primarily through these research method practical sessions and the research projects and demonstrated through the practical session assessments, research report and laboratory notebook. Transferable skills will be acquired through a variety of tutorials and exercises, e.g. by presenting analyses of published papers and/or chosen topics in group presentations and the presentation of

research data in the form of a research report and poster. Together, these activities will demonstrate that students have the training to justify, critically appraise, analyse and comment on their future research and clinical activities.

On completion of the compulsory modules (modules 7PADGGA1, 7PADGGA2 and 7PADGGA3), all students will have a good understanding of the above subject areas, that will be sufficient for them to understand the main research methods, new developments in these areas and to understand their relevance to their own research. Students will be able to integrate knowledge from different disciplines and relate it to both normal and abnormal behaviours. In addition, they will have acquired practical skills (both molecular and analytical) which will provide them with the necessary tools to develop further in their research project (module 7PADGGB1). The research project will consolidate the students' research skills by providing them with an understanding of experimental design, acquisition and analysis of data and applications.

The programme will seek to increase students' knowledge of behavioural genetics and understanding, especially in those students wishing to convert from their original degree discipline and to equip them to apply it in their future career choice, either in further postgraduate education (e.g. PhD) or employment related to the subject. In addition, this programme aims to provide a thorough grounding in a range of research methods and their application, and develop skills of critical evaluation, problem solving and intellectual argument in order to carry out independent research. Students will develop an awareness of the practical and ethical issues related to conducting, writing up and disseminating research and develop transferable skills and knowledge needed for a career in academic research.

16. Educational objectives of the programme/programme outcomes (as relevant to the SEEC Credit Level Descriptors)

The programme provides opportunities for students to develop and demonstrate knowledge and understanding and skills in the following areas:

Knowledge and understanding

The programme provides a **knowledge and understanding** of the following:

- the wide range of subjects that are relevant to the characterisation of mental health disorders and a full understanding of the theoretical bases of normal and abnormal human behaviours will be provided by the fundamental modules A1 and A3
- the research methods relevant to interdisciplinary research in behavioural genetics will be provided by module A2
- the ability to extract, integrate and evaluate information from a variety of sources in order to identify and formulate appropriate research questions and then, to select the most appropriate research techniques to investigate the particular research question will be provided by the research project (module B1)

These are achieved through the following **teaching/learning methods and strategies**:

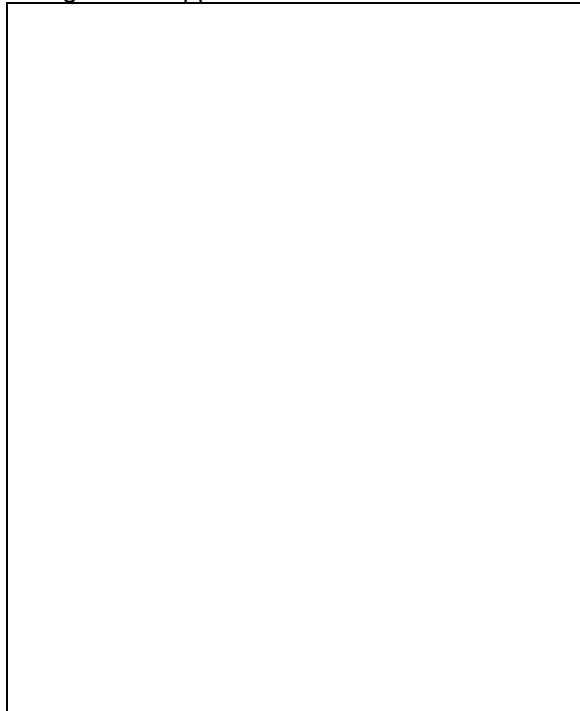
Teaching and learning opportunities will be provided;

- primarily through a combination of didactic lectures supported by
- interactive seminars
- tutorials/presentations
- practical skills training sessions

and by individual training in

- the laboratory and analytical skills required to conduct and document a supervised research project and,
- in the writing of an original and critical report

Assessment:
Testing of knowledge and understanding will be through a combination of formative and



summative assessment. Specifically:
Formative Assessment: This will be achieved through written feedback provided on the coursework essays, practical sessions, group tutorials and oral presentations in the A1 module, discussion on the written answers to questions in a mock examination and, the

Summative Assessment:
Four coursework essays and an abstract assignment (250-300 word abstract written to accompany a published paper given unseen to the students without the abstract), laboratory practical exams, journal club presentations, oral presentation of a research paper, research project report, laboratory notebook (incl. conduct in the laboratory) and oral examination of a poster presentation.

Skills and other attributes

Intellectual skills:
The programme will provide students with an understanding of how a hypothesis driven science progresses and how competing/ conflicting hypotheses/ theories might be resolved by enabling students to

- select appropriate theories
- formulate hypotheses, design and carry out experiments, and then;
- analyse, interpret and present the complex results in the context of current literature
- to communicate the findings of scientific experiments in oral and written formats

These skills will enable students to undertake postgraduate research in several research areas within the behavioural genetics.

These are achieved through the following **teaching/learning methods and strategies:**

- didactic lectures and participation in tutorials and practical sessions
- transferable skills training sessions (including communication skills)
- oral presentation to, and discussion with, other students and a lecturer of research papers and problem-solving scenarios
- the ability to self-learn
- design and execution of experimental protocols in the context of a supervised research project
- a project report and defending a poster presentation
- SGDP Centre monthly guest lectures and weekly departmental seminars

Assessment:
Formative Assessment: This will be aided by group tutorials, practical sessions and presentations, discussion on the written answers to questions in a mock examination and, the written feedback provided on the coursework essays

Summative assessment: The understanding of behavioural genetics

	topics will be evaluated through: <ul style="list-style-type: none">• the coursework essays, abstract and laboratory practical exams and a project report• oral presentation, journal club presentations and oral defence of the poster
<p>Practical skills:</p> <ul style="list-style-type: none">• the ability to retrieve and select information from electronic and written sources• practical competency in a range of advanced research techniques (both wet and dry lab) and good understanding of a wider range• the ability to generate experimental hypotheses and to design experiments to test the hypotheses• the ability to collect, analyse and interpret research data• computer skills including database mining/bioinformatics, PowerPoint presentations, spreadsheets and databases, statistical analysis• the ability to present the ideas underlying the project design orally and in written (poster and report) formats <p>Working as a member of a team in group presentations, practical sessions and in the research project</p>	<p>These are achieved through the following teaching/learning methods and strategies:</p> <ul style="list-style-type: none">• techniques lectures and practical sessions• a supervised research project during which students will be trained in relevant research techniques, learn about problem solving and gain research knowledge from their supervisors• development of IT skills and use of project-specific analytical software and statistical software for data analysis• analysing project results and presenting them in written and poster format <p>Assessment:</p> <ul style="list-style-type: none">• laboratory practical exams• oral presentation of a research paper• a poster presentation and its oral defence• project report and day-to-day laboratory book

Generic/transferable skills:

- the ability to conduct literature searches and critically evaluate the logical strength of different arguments
- scientific writing and reporting
- research design and implementation
- management and organisation of a supervised research project
- working with other students toward a common goal in a team (preparation of group posters and oral presentations) and acquiring the ability to respect other points of view and the value of intellectual discourse
- design and presentation of a poster
- to communicate information to, and discuss it with, other students and lecturers
- to communicate information to the media and general public
- statistical analysis
- general laboratory skills and conduct (including health and safety)
- bioinformatics
- computer skills, e-mail, word processing, database mining, PowerPoint presentations, spreadsheets, statistical analysis

These are achieved through the following **teaching/learning methods and strategies:**

- lectures, tutorials, practical and transferable skills training sessions (including communication skills)
- presentations, both individual and group, to other students and then to respond to their questioning
- direct instruction and supervision
- self-directed learning informed by discussion with lecturers and research supervisors

Assessment:

- communications skills training assignments
- journal club presentations
- examination of an oral presentation of a research paper
- through the carrying out of a research project and writing it up in a research report
- preparing a poster and defending it to the examiners
- day-to-day laboratory book

17. Statement of how the programme has been informed by the relevant subject benchmark statement(s)/professional, statutory and regulatory body guidelines

There are no specific benchmarks for postgraduate interdisciplinary research on genes, environment and the development of behaviour. However, the programme will be informed by knowledge of the QAA benchmarks for masters programmes in Chemistry and Mathematics, Statistics and Operational Research as well as those for more closely related, but undergraduate level, programmes in Psychology and the Biomedical Sciences, knowledge of the curriculum for the BSc in Biomedical Sciences at KCL and membership of the Programme Committee for the MSc Neuroscience at the IoPPN, KCL. It will also be informed by knowledge of the taught content of other MSc's in Psychology and Behavioural Genetics in the UK and U.S.A. Most of the students on the programme will have a single honours degree in a related subject, such as psychology, but there are no inter-disciplinary undergraduate courses in behavioural genetics. Therefore, the programme will introduce the students to the interdisciplinary approach and will take the students to level 7 in the different subject areas. However, varying amounts of the programme may be seen as a conversion course, depending on the background of the students, they will acquire knowledge and skills from other disciplines while building on their learning from the discipline in which they graduated as allowed under footnote to Appendix 2 (9.1) of *Academic regulations, Regulations concerning students, General Regulations, Library Services and Information Technology, Service regulations 2011-2012*). This programme will not lead to a clinical qualification and therefore is not subject to professional/statutory body guidelines.

18. In cases of joint honours programmes please provide a rationale for the particular subject combination, either educational or academic

Programme approval 2011/12

The programme will be postgraduate and therefore not a joint honours programme. However, a small number of lectures and research projects will be taught/supervised by academics outside KCL due to the interdisciplinary nature of the programme. For example, lectures in cross-cultural differences in behaviour and the genetics of psychopathic traits from lecturers based at Goldsmiths University and University College London. The majority of these external lecturers are closely affiliated with KCL, having visiting status at the IoPPN, KCL or joint appointments within the SGDP Centre at the IoPPN, KCL.

Which is the lead department and/or School? **SGDP Centre, IoPPN, KCL**

19. Programme structure										
Please complete the following table and, if appropriate, to include joint, major/minor or other variations Code = code of each module available for the programme Title = title of each module available for the programme, plus its credit level and credit value Status = please indicate whether the module is introductory (I), core (Cr), compulsory (Cp), one or more of however many modules must be passed to progress (CrCp), (P) professional (i.e. module testing skills/competency that has no credit level or value but is a professional body requirement) or optional (O) for each type of programme. For postgraduate programmes use the "single honours" column Pre-requisite/Co-requisite = where appropriate please indicate whether the module is pre-requisite to another module or co-requisite by noting pre or co and the module code that it is pre/co-requisite to. Assessment = please indicate in broad terms the assessment for the module eg written examinations, coursework (Note: the availability of optional modules may vary slightly from year to year; the following are the modules available at the commencement of the programme)										
Code	Title	Credit Level	Credit Value	Status (I, Cr, Cp, CrCp, P, O) for each type of module			Pre-requisite/ Co-requisite (Please note the module code)			Assessment
				Single	Joint	Major/Minor	Single	Joint	Major/Minor	
Full-time Study										
	MSc Genes, Environment & Development									
7PADGGA1	An Introduction to Behavioural Genetics	7	30	Cr			None			Coursework Practical
7PADGGA2	Research Methods	7	60	Cr						Coursework Practical
7PADGGA3	Psychology & Psychopathology	7	30	Cr			None			Coursework Written examination
7PADGGB1	Research project	7	60	Cr			Pre (A1-3)			Coursework Practical
If a Masters programme, are level 6 credit levels permitted within the programme? No										
Maximum number of credits permitted with a condoned fail (core modules excluded) N/A										

PAF Initially Approved: 20 July 2012
 PAF finalised for 2013/14: 30 October 2013
 PAF finalised for 2014/15: October 2014
 PAF checked for 2019/20: 02 Octo 2019

Are students permitted to take any additional credits, as per regulation A3? No
Are students permitted to take a substitute module, as per regulation A3? n/a
Are there any exceptions to the regulations regarding credits, progression or award requirements? (where relevant the information should also differentiate the particular requirements of pathways within a programme or nested/exit awards) No
Other relevant information to explain the programme structure <i>Please note that <u>new</u> students enrolling on the information provided on this section of the PAF will have these regulations stipulated throughout their programme of study. The only exception to this will be if there are changes made by Professional, Regulatory or Statutory Bodies that are noted to this programme.</i> n/a

20. Marking criteria

These will be according to the College guidelines for Pass, Merit and Distinction. Papers will be blind, double-marked. The programme will have clear marking guidelines that will require, in the case of coursework essays, a standard marking sheet to be attached to each script and annotated in order to provide formative feedback. These guidelines will be publicised to students and made available on the programme's website and the on-line programme handbook.

21. Will this Programme report to an existing Board, and if so which one? If a new Programme Board of Examiners is to be set up please note name of Board here

This programme will report to a Board of examiners named Genes, Environment & Development Board of Examiners.

22. Please confirm that the process for nominating External Examiners has commenced, and if known, note whom the nominated External Examiner(s) may be

Dr Patrick Nolan (MRC Mammalian Genetics Unit, Harwell) has agreed to be an external examiner. Dr Nolan commenced this role in October 2013.

23. Particular features of the programme which help to reduce the barriers experienced by disabled students and ensure that the programme is accessible to all students who meet the entry requirements

Applicants who declare a disability will be referred to the KCL disability officer, and if recommended, students with disabilities will have access to alternative comparable assessment tasks. However, some research methods training and projects may not be suitable for students with certain disabilities (see below). All the programme material including the timetable, titles of lectures, programme specifications, methods of assessment, programme handbook, project titles, etc, will be made available on a programme website so that students interested in the programme can make an informed decision about whether the programme is likely to meet their needs.

Once students have enrolled, they will be given access to other areas of the e-learning site where they will be able to watch/listen to AV files of the 7PADGGA1 lectures and download pdf files of the 7PADGGA1 lecture handouts. Thus students will be able to access these recordings beforehand and prepare themselves for their first course module (7PADGGA1). Lectures from all the modules 7PADGG1-3 will be recorded and uploaded, usually within a few days of them being given. This facility will enable the students to replay all their lectures, a feature that is of considerable value to students with, for example, dyslexia, who may have difficulty taking notes during a lecture, and to students whose first language is not English. These recordings will also be a valuable aid to consolidation of their learning and to writing coursework essays. Coursework essays will be submitted online, through the Turnitin software removing the need for the students to visit the programme office. On subsequent years, the lecture recordings will be updated, overwriting the recordings from previous years and made available to all enrolled students.

It is foreseeable that a student with certain physical disabilities might not be able to safely carry out the laboratory-based research methods training or a laboratory-based project. In these circumstances, a student would be given access to recordings of the laboratory-based training and offered an alternative research project, e.g. computer-based project in statistical genetics, or another non-laboratory based project.