Royal Holloway, University of London
Course specification for an undergraduate award
BA MATHEMATICS AND MUSIC (GW13)

Section 1 – Introduction to your course

This course specification is a formal document, which provides a summary of the main features of your course and the learning outcomes that you might reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities that are provided. Further information is contained in the University prospectus, and in various handbooks, all of which you will be able to access online. Alternatively, further information on the University's academic regulations and policies can be found here. Further information on the University's Admissions Policy can be found here.

Your degree programme in BA Mathematics and Music is delivered in three stages, each of which comprises one year of full-time study during which you must follow modules to the value of 120 credits.

In stage one the mandatory modules in the Department of Mathematics seek to provide a broadly based introduction to mathematics, which will develop manipulative skills, understanding of the key concepts and the ability to construct logical arguments. In stage two, you will take modules which continue your study of abstract pure mathematics and its applications. In stage three, you take modules to the value of 120 credits and are advised on appropriate combinations and pathways depending on your interests, stage one and two options, and possible future career paths. You may choose to undertake an extended project.

For joint and combined honours programmes, please refer to the programme specification for your secondary department's corresponding single honours programme for further information on educational aims and learning outcomes.

The following is a brief description for some of the most important terminology for understanding the content of this document:

Degree course – May also be referred to as 'degree programme' or simply 'programme', these terms refer to the qualification you will be awarded upon successful completion of your studies.
Module – May also be referred to as 'course', this refers to the individual units you will study each year to complete your degree course. Undergraduate degrees at Royal Holloway comprise a combination of modules in multiples of 15 credits to the value of 120 credits per year. On some degree courses a certain number of optional modules must be passed for a particular degree title.

Section 2 – Course details			
Date of specification update	April 2024	**Location of study**	Egham Campus
Course award and title	BA Mathematics and Music	**Level of study**	Undergraduate
Course code	1279	**UCAS code**	GV13
Year of entry	2024/25		
Awarding body	Royal Holloway, University of London		
Department or school	Mathematics	**Other departments or schools involved in teaching the course**	Music
Mode(s) of attendance	Full-time	**Duration of the course**	3 years
Accrediting Professional, Statutory or Regulatory Body requirement(s)	N/A		
Link to Coursefinder for further information:	https://www.royalholloway.ac.uk/studying-here/	**For queries on admissions:**	https://royalholloway.ac.uk/applicationquery

Section 3 – Degree course structure

3.1 Mandatory module information

The following table summarises the mandatory modules which students must take in each year of study

Year	Module code	Module title	Credits	FHEQ level	Module status (Mandatory Condonable MC or Mandatory Non-Condonable MNC
1	MT1710	Calculus I	15	4	MC
1	MT1720	Calculus II	15	4	MC
1	MT1810	Introduction to Pure Mathematics	15	4	MC
1	MT1820	Linear Algebra I	15	4	MC
1	MU1110	Theory & Analysis	15	4	MC
2	MT2320	Probability Theory	15	5	MC
2	MT2800	Linear Algebra II	15	5	MC

This table sets out the most important information for the mandatory modules on your degree course. These modules are central to achieving your learning outcomes, so they are compulsory, and all students on your degree course will be required to take them. You will be automatically registered for these modules each year. Mandatory modules fall into two categories: 'condonable' or 'non-condonable'.

In the case of mandatory 'non-condonable' (MNC) modules, you must pass the module before you can proceed to the next year of your course, or to successfully graduate with a particular degree title. In the case of mandatory 'condonable' (MC) modules, these must be taken but you can still progress or graduate even if you do not pass them. Please note that although Royal Holloway will keep changes to a minimum, changes to your degree course may be made where reasonable and necessary due to unexpected events. For example: where requirements of relevant Professional, Statutory or Regulatory Bodies have changed and course requirements must change accordingly, or where changes are deemed necessary on the basis of student feedback and/or the advice of external advisors, to enhance academic provision.

3.2 Optional modules

In addition to mandatory modules, there will be a number of optional modules available during the course of your degree. Although Royal Holloway will keep changes to a minimum, new options may be offered or existing ones may be withdrawn. For example, where reasonable and necessary due to unexpected events, where requirements of relevant Professional,

Statutory or Regulatory Bodies (PSRBs) have changed and course requirements must change accordingly, or where changes are deemed necessary on the basis of student feedback and/or the advice of External Advisors, to enhance academic provision. There may be additional requirements around option selection; please contact the Department for further information.

Stage One:

The curriculum in **Music** is as follows:
Students on Required Intensive Theory entry must take the **mandatory condonable MU1111 Fundamentals of Music Theory,** then choose 30 credits of additional modules, including no more than 15 credits from List D; while all other students choose 45 credits of additional modules, including at least 15 credits from Lists B or C; and no more than 15 credits from List D.

List A:
MU1112 Creative Composition Techniques (15 credits)
MU1120 Introduction to Composing with Music Technology (15 credits)
List B:
MU1114 A Very Short History of Music (15 credits)
MU1115 Introduction to Historical Musicology (15 credits)

List C:
MU1116 Introduction to World Music (15 credits)
MU1117 Contemporary Debates in Music (15 credits)

List D:
MU1118 Solo Performance (15 credits)
MU1119 Creative Ensemble Performance (15 credits)

Stage Two:

You must take options to the value of 30 credits from stage 2 modules offered by the Department of **Mathematics**.

Students choose level 5 Music modules to the value of 60 credits from six Lists of optional modules provided by the Department, including at least one module from three different Lists.

Stage Three:

You must choose 60 credits of options from the list of stage 3 modules offered by the Department of **Mathematics**.

Students choose **Music** modules to the value of 60 credits drawn from level 6 modules.

Note:
(i) The curriculum above reflects the equal division of the 12 modules (360 credits) of a Joint Honours programme into 6 modules (180 credits) of each component. Over stages two and three the Maths curriculum may be decreased or increased by up to 30 credits to give the permitted minimum of 150 credits and maximum of 210 credits in Maths. Likewise over stages two and three the Music curriculum may be decreased or increased by up to 30 credits to give the permitted minimum of 150 and maximum of 210 credits in Music.
(ii) Within stages two and three, and subject to the approval of the Departments concerned, up to 30 'elective' credits of level 5 or level 6 modules in other Departments may be substituted for Music modules.
(iii) Prerequisites may apply to optional modules.

Section 4 - Progressing through each year of your degree course

For further information on the progression and award requirements for your degree, please refer to Royal Holloway's Academic Regulations.

Progression throughout the year/s is monitored through performance in summative or formative coursework assignments. Please note that if you hold a Student Visa and you choose to leave (or are required to leave because of non-progression) or complete early (before the course end date stated on your CAS), then this will be reported to UKVI.

All first year students on single, joint or combined honours courses offered all or in part by the School of Humanities, School of Performing and Digital Arts, or department of Politics, International Relations and Philosophy are required to pass a Moodle-based writing skills quiz in order to progress into the second year of study. The pass mark for the test is 60%. Students may attempt the quiz as often as they wish with no penalties or capping. Students who meet the requirements for progression as stipulated in the Academic Taught Regulations but fail to pass the Moodle-based Academic Integrity module will not be permitted to progress into their second year of academic study.

Section 5 – Educational aims of the course

The aims of this course are:

- to provide students with technical manipulative skills, the ability to read and write in the compressed language of mathematics, and the ability to distil a problem into a mathematical description of its essential detail;
- to ensure that students gain an appreciation of, and interest in, the logical structure of mathematics, and its use as an analytical and predictive tool in applications;
- to offer a wide range of optional modules to suit students' interests and strengths;
- to provide access to personal, academic and pastoral support;
- to enable students, on graduation, to compete effectively in employment or postgraduate study.

Section 6 - Course learning outcomes

In general terms, the courses provide opportunities for students to develop and demonstrate the following learning outcomes. (*Categories – Knowledge and understanding (K), Skills and other attributes (S), and Transferable skills (*)*)

Course learning outcome	Level 4	Level 5	Level 6
1: Gain knowledge and understanding of mathematical and musical concepts, mathematical and musical methods, and abstract mathematical structures.	1.4.1: Develop knowledge and understanding of mathematical methods. 1.4.2: Start to develop knowledge and understanding of abstract structures such as groups, matrices, and fields. 1.4.3: Recall key information concerning musical repertoires and their contexts. 1.4.4: Recognize important aspects of musical languages.	1.5.1: Embed knowledge and understanding of mathematical methods. 1.5.2 Embed knowledge of the abstract theory of matrices. 1.5.3: Contextualize information concerning musical repertoires and their contexts. 1.5.4: Discuss a variety of aspects of musical languages.	1.6.1: Extend knowledge and understanding of mathematical methods. 1.6.2 Extend knowledge of abstract structures such as groups. 1.6.3: Explicate knowledge and critical understanding of musical repertoires and their contexts. 1.6.4: Scrutinize aspects of musical languages and our approaches to understanding them.
2: Grow an understanding of results from a range of areas of mathematics and music, how these are interlinked, how mathematics is key to some applications, and how music relates to contextual factors.	2.4.1: Develop the ability to take theoretical knowledge gained in one area and apply it elsewhere. 2.4.2: Recognize how musical repertoires may relate to the contexts in which they sound(ed). 2.4.3: Identify critical theories and historical, societal, and artistic contexts relevant to music.	2.5.1: Develop knowledge and understanding of some results from a range of major areas of mathematics, statistics, or operational research. 2.5.2: Discuss a variety of musical repertoires and link them to the contexts in which they sound(ed). 2.5.3: Analyse critical theories and historical, societal, and artistic contexts relevant to music.	2.6.1: Develop knowledge and understanding of at least one major area of applications in which the mathematics is used in a serious manner and is essential for proper understanding. 2.6.2: Propose and justify relationships between musical repertoires and the contexts in which they sound(ed). 2.6.3: Evaluate multiple critical theories and historical, societal, and artistic contexts relevant to music.
3: Develop skills of numeracy, manipulation of mathematical expressions, musical investigation, and the analytic approach to solving problems.	3.4.1: Apply a high level of numeracy. 3.4.2: Develop the ability to manipulate and analyse complex mathematical expressions accurately. 3.4.3: Imitate established processes for analysing or using musical materials.	3.5.1: Grow the ability to manipulate and analyse complex mathematical expressions accurately. 3.5.2: Develop a general ethos of numeracy and of analytical approaches to problem solving.	3.6.1: Develop the ability to provide accurate analysis of a situation, the factors involved and possible approaches to solution.

		3.5.3: Demonstrate an ability to apply analytical or practice-based methods to musical materials.	3.6.2: Derive insight into musical materials through analytical interrogation or practice-based investigation.
4: Develop the ability to argue logically about mathematics and music, and to understand the role of formal proofs and other evidence to formulate conclusions.	4.4.1: Develop the ability to make a sequence of logical steps and reflect on the result. 4.4.2: Learn and apply methodologies for understanding music. 4.4.3: Compile relevant information about a topic in response to a brief.	4.5.1: Develop the ability to understand the role of logical mathematical argument and deductive reasoning, including formal proof. 4.5.2: Select and apply methodologies for understanding music, appropriate to the sources and aims. 4.5.3: Draw and justify conclusions in response to challenges and briefs.	4.6.1: Embed the ability to understand the role of logical mathematical argument and deductive reasoning, including formal proof. 4.6.2: Critically apply research methodologies to provide insight into music. 4.6.3: Formulate conclusions and insight about music through research findings.
5: Develop the ability to formulate problems mathematically, to solve the resulting mathematical problems, and to interpret the results.	5.4.1: Begin to develop the ability to formulate problems in mathematical or statistical form using appropriate notation. 5.4.2: Begin to develop the ability to solve equations or inequalities arising from a problem analytically or numerically, and to interpret the results.	5.5.1: Develop the ability to formulate problems in mathematical or statistical form using appropriate notation. 5.5.2: Develop the ability to solve equations or inequalities arising from a problem analytically or numerically, and to interpret the results.	5.6.1: Grow the ability to formulate problems in mathematical or statistical form using appropriate notation. 5.6.2: Grow the ability to solve equations or inequalities arising from a problem analytically or numerically, and to interpret the results.
6: Convey personal expression, meaning and ideas through creative work about, or involving, music.	6.4.1: Identify ways in which musical expression, meaning and/or ideas can be conveyed.	6.5.1: Make contextually appropriate choices to personalise musical expression, meaning and/or ideas.	6.6.1: Articulate informed, contextually appropriate individual conclusions about music, and/or individual creative approaches to musical activities.

Section 7 - Teaching, learning and assessment
Teaching and learning on your course is closely informed by the active research of staff, particularly in the areas of Mathematics. In general terms, the course provides an opportunity for you to develop and demonstrate the learning outcomes detailed herein. Teaching and learning is mostly by means of lectures, small group tutorials, problem-solving workshop sessions, written and oral feedback on coursework, practical sessions in statistics and computational mathematics, guided independent study and oral presentations. Assessment of knowledge and understanding is typically by formal examinations, coursework, examined essays, exercises, online tests and exercises, oral presentations and the dissertation or long essay. In addition, students may be involved in workshops and may produce various forms of creative work. Contact hours come in various forms and may take the form of time spent with a member of staff in a lecture or seminar with other students. Contact hours may also be laboratory or, studio-based sessions, project supervision with a member of staff, or discussion through a virtual learning environment (VLE). These contact hours may be with a lecturer or teaching assistant, but they may also be with a technician, or specialist support staff. The way in which each module on your degree course is assessed will also vary. Assessments designated as 'summative' will receive a mark which will count towards your overall mark for the module, and potentially your degree classification, depending on your year of study. On successful completion of the module you will gain the credits listed. More detailed information on modules, including teaching and learning methods, and methods of assessment, can be found via the online Module Catalogue. The accuracy of the information contained in this document is reviewed regularly by the university and may also be checked routinely by external agencies.

Section 8 – Additional costs
There are no single associated costs greater than £50 per item on this degree course.
These estimated costs relate to studying this particular degree course at Royal Holloway. General costs such as accommodation, food, books and other learning materials and printing etc., have not been included, but further information is available on our website.

Section 9 – Indicators of quality and standards	
QAA Framework for Higher Education Qualifications (FHEQ) Level	4-6
Your course is designed in accordance with the FHEQ to ensure your qualification is awarded on the basis of nationally established standards of achievement, for both outcomes and attainment. The qualification descriptors within the FHEQ set out the generic outcomes and attributes expected for the award of individual qualifications. The qualification descriptors contained in the FHEQ exemplify the outcomes and attributes expected of learning that results in the award of higher education qualifications. These outcomes represent the integration of various learning experiences resulting from designated and coherent courses of study.	
QAA Subject benchmark statement(s)	http://www.qaa.ac.uk/quality-code/subject-benchmark-statements
Subject benchmark statements provide a means for the academic community to describe the nature and characteristics of courses in a specific subject or subject area. They also represent general expectations about standards for the award of qualifications at a given level in terms of the attributes and capabilities that those possessing qualifications should have demonstrated.	

Section 10– Intermediate exit awards (where available)		
You may be eligible for an intermediate exit award if you complete part of the course as detailed in this document. Any additional criteria (e.g. mandatory modules, credit requirements) for intermediate awards is outlined in the sections below.		
Award	**Criteria**	**Awarding body**
Diploma in Higher Education (DipHE)	Pass in 210 credits of which at least 90 must be at or above FHEQ Level 4 and at least 120 of which must be at or above FHEQ Level 5	Royal Holloway and Bedford New College
Certificate in Higher Education (CertHE)	Pass in 120 credits of which at least 90 must be at or above FHEQ Level 4	Royal Holloway and Bedford New College