

Programmes Committee (PC)

Tuesday 14 September 2021
10:00-12:00

Present

Dr Clemens Brechtelsbauer (Chair), Dr Lorraine Craig, Ms Michaela Flegrova, Professor Richard Green, Dr Magdalena Jara, Mr Daniel Lo, Dr Felicitas Starr-Egger, Dr Mike Tennant (Deputy Chair), Mr Scott Tucker, Ms Judith Webster, Ms Men-Yeut Wong (Secretary), Ms Betty Yue.

Apologies

Dr Jo Horsburgh, Ms Kate Ippolito and Dr Vijay Tymms.

1 Welcome and Apologies

The Chair welcomed attendees to the meeting and apologies, as above, were noted.

2 PC.2021.01 Minutes of the previous meeting

The minutes of the previous meeting held on 20 July 2021 were approved as an accurate record.

3 PC.2021.02 Terms of Reference 2021-22

The Chair presented Committee members with the updated Terms of Reference for the Committee and it had been agreed that no amendments were required.

4 Matters Arising

There were no matters arising to discuss.

Items for consideration

5 New Programme Proposals

5.1 PC.2021.04 BSc Economics, Finance and Data Science

5.1.1 The Programmes Committee considered a new programme proposal from the Imperial College Business School to introduce the above undergraduate programme with effect from October 2023.

5.1.2 The Committee welcomed the programme lead, Associate Professor Pedro rosa Dias, who had been invited to present the new programme proposal.

5.1.3 The BSc Economics, Finance and Data Science is set against the backdrop of increasing demand for graduates with academic training in economics and finance whose analytical skills are complemented with knowledge of data science and coding capabilities. Whilst economics and finance form the basis of rigorous undergraduate programmes in leading institutions across the sector, these have not historically included the study of data science as part of the curriculum, leaving graduates to develop these skills independently.

The BSc Economics, Finance and Data Science joint degree draws on the academic expertise of all Departments in Imperial College Business School (Economics and Public Policy; Finance; Analytics, Marketing and Operations; Management and Entrepreneurship) to offer students the rigorous study of economics and finance, enriched through the study of data science and its applications within these disciplines. A further dedicated sequence of modules develops the essential soft skills demanded by employers.

5.1.4 The Programmes Committee congratulated the Business School in achieving the milestone of developing their first undergraduate programme which was warmly welcomed, it was agreed that a well written proposal had been presented and noted that data science being incorporated into the programme had been a desirable addition to the programme.

5.1.5 The Committee agreed upon the following recommendations:

Programme overview

- Remove reference to a 'joint degree' as this could lead to students misunderstanding that this will lead to a joint award with another institution or partner programme;
- Suggestion to include a paragraph on prospective career pathways after a student graduates from the programme, e.g. what kind of roles/job titles can this degree lead to and what other career pathways could a student pursue;

Programme Learning Outcomes

- Generally these are very clearly articulated learning outcomes that appear to be set at the appropriate level. It may be useful for the programme team to review the number of outcomes and whether some may need refining as there seem to be several learning outcomes grouped into one. (Further comments from the EDU representative attached.)

Programme structure

- Should some of the modules (in particular Mathematical Foundations, Introduction to Statistics, Introduction to Data Science) be categorised as core to ensure that students have the fundamental understanding on which Econometrics and Data Science modules will build upon in years 2 and 3?
- It was good to see that there is a wide range of electives to choose from in Year 3, it would be useful to group them into specialisations within the year 3 programme structure.

External accreditation

- Do the current external accreditors for the Business School's postgraduate provision also cover this undergraduate programme or will separate accreditation be sought?

Monitoring of students' personal development and welfare

- It was recommended that the programme team review its personal tutoring approach from an undergraduate perspective as this will be significantly different from the postgraduate cohorts. All undergraduate students should have a personal tutor assigned to them for the duration of the programme who can offer help and support with academic or personal issues;
- Remove reference made to 'counselling' as senior tutors/personal tutors/student wellbeing advisors do not counsel or provide counselling;

Entry requirements

- Review the English language requirement of 'Standard requirement', the proposal seems to suggest that the higher standard would be required, but this differs in the programme specification.
- In terms of Widening participation, it was noted that Further Mathematics is not a strict requirement, it would be useful for the programme team to think of other ways with how WP students could be targeted;
- Gender balance is not mentioned in the proposal, the programme team should review how the entry requirements of A*AA with an A* in Mathematics could result in a gender imbalance.

Cross College consultation

The Programmes Committee noted that the programme endeavours to cross collaborate with departments across College in particular the Faculty of Engineering, the Faculty of Engineering would welcome the opportunity to review the programme proposed for comment on how this can be achieved before the programme is approved. It is

recommended that the programme team meet with the specific Heads of Departments within the Faculty of Engineering to discuss further. It may also be useful to discuss the sharing of resources as the Faculty of Engineering already run successful modules in Machine Learning and Data Science.

Learning and teaching approach

Ensure that the College's Learning and Teaching Strategy is clearly embedded within the proposal, in particular active learning and innovation in teaching methods. The Committee acknowledged that the Business School has incorporated teaching innovation in its existing programmes but could be better emphasised in the programme proposal. It was suggested that for a Economics, Finance and Data Science programme, a more 'hands on' approach of learning with walk through exercises to teach students could be beneficial.

Space

The proposal notes that programme will be utilising space within the South Kensington campus as well as White City with a long term plan to establish a new substantive state-of-the-art space to accommodate growth. Assuming the initial intake of 60-90 students in year one (for entry October 2023) the programme team are advised to review its space strategy and requirements, if necessary consultation with other Faculties/Departments across College should be sought for space sharing in the short term.

Specific module comments:

- **Introduction to Data Science**
 - Suggest this module to also include data cleaning (how to prepare the data) and governance.
 - Should also consider having external speakers to talk about the real world application of data science in the financial sector.

- **Final project module**
 - It says students will use both econometrics and coding skills acquired to design a suitable research methodologically and source, clean and analyse data using the chosen approach. Should the project also include identifying a visualisation tool to best present the data to a non-technical audience?

- **Essential skills 3**
 - Good to see business and behavioural ethics are taught. Will be more useful for students if data ethics, privacy and data security can be included in this module.

- 5.1.6 The Programmes Committee noted that careful planning had taken place in the designing of the programme but could be made more evident within the proposal itself. The Committee agreed that alongside the recommendations above, the proposal should be reviewed by the programme team to ensure that the issues are addressed in order to launch a successful programme.

Once a response has been received to the recommendations made above, the Committee would like to invite the programme team to present their updated programme to the next meeting of the Programmes Committee (Tuesday, 30th November 2021). Noting the UCAS/advertising deadlines, if necessary, the Chair will call an extraordinary meeting of the Committee to reconsider the proposed programme.

6 Curriculum Review

6.1 PC.2021.04 Full Time MBA

6.1.1 The Programmes Committee considered the redesigned programme above from the Imperial College Business School with effect from September 2022.

6.1.2 The Programmes Committee thanked the programme team in submitting a comprehensive Curriculum Review of the Full-time MBA which had been frank and honest with a high-level of student, alumni and industry engagement. The introduction of the guided tracks had been welcomed in providing a positive way forward for students choosing a specific pathway.

6.1.3 The Committee agreed upon the following recommendations:

- The Programmes Committee noted that the Full-time MBA programme had been redesigned as a 125 ECTS weighted programme. The Programmes Committee will not be supporting this non-standard request which does not adhere to the College's Regulations for Taught Programmes of Study. The Committee acknowledged that the current programme structure utilises a large number of small credit modules which have now been converted to 5 ECTS modules to meet the College's standard base module size. The team should review how this could be better accommodated in the redesigned programme structure rather than increasing the overall programme weighting.
- The Curriculum Review proposal concluded that the programme required more leadership soft skills, innovation and data analytics skills, the Committee were of the view that these associated new modules seemed to be added on rather than embedded into the ethos/identity of the programme.
- Programme overview mentions that it 'combines academic rigour and practical relevance with a careful balance of teaching and learning, individual and group work' but does not seem to mention business and management, it was suggested that this section should give the student a statement about the personality of the programme, the attributes the programme aims to embed into its students, what the programme aims to achieve and how.
- With the assessment strategy throughout the programme, there is an emphasis on examinations and coursework with only a few modules assessing through presentation. Given the feedback from prospective employers around further developing students soft skills and confidence, it was suggested that more authentic, real-world assessments could be factored in.

6.1.4 Once a response has been received to the recommendations made above, the Committee would like to invite the programme team to present their updated programme to the next meeting of the Programmes Committee (Tuesday, 30th November 2021).

Further discussion around the inclusion of primer modules and the request for Programme Specific Regulations will be referred to the Regulations and Policy Review Group for consideration.

6.2 PC.2021.05 MSc Strategic Marketing

6.2.1 The Programmes Committee considered the redesigned programme above from the Imperial College Business School with effect from September 2022.

6.2.3 The Programmes Committee thanked the programme team for submitting a well thought through Curriculum Review proposal with detailed background information which included in-depth consultation with students and external examiners. The Committee

welcomed the inclusion of bringing more flexibility to the programme by aligning it with the online MSc Strategic Marketing programme.

6.2.4 The Committee agreed upon the following recommendations:

- Programme Learning Outcomes- The Committee recommends that the programme team liaise with the Education Development Unit to develop the Learning Outcomes, the Committee were of the view that the learning outcomes could be further elevated to a level 7 standard. It was noted that the current programme sets out additional learning outcomes which have not been included in the redesigned programme, under Knowledge and Understanding; Skills and other attributes; and Practical Skills, could these be further developed to be included in the redesigned programme?;
- Throughout the module outlines the feedback section states that there are no formative assessments designated within the modules. The Programmes Committee would like to seek confirmation from the programme team that this is correct, in particular with the Applied Strategic Marketing Report module, will students will not receive any feedback or supervision throughout the writing of the report. If feedback and support is embedded within the writing of the report, this should be made clear;
- The ethical responsibility of marketing is not evident within the programme and modules, whilst this may be included in the programme design and planning, this should be present in the programme documentation;
- Most of the modules are assessed by examinations and coursework, with only two modules assessing via presentation, whilst the Committee understands that the summative assessments are kept vague to allow for flexibility, the Committee were of the view that for a marketing programme more authentic assessments including presentations should be included in the assessment tab of the module specifications;
- With the programme having a large number of compulsory modules, assessed through examination and coursework, the Committee were of the view that this could be quite a heavy burden on students and could benefit with a rebalancing of assessments reflecting the different elements which have been included in the assessment strategy section of the programme specification;
- The consultation with students and alumni state that several modules taught on the programme should be designated as a core module, this is also evident within the comments made at the Curriculum Review Advisory Board; these modules have now been presented as either compulsory or elective;

6.2.5 Once a response has been received to the recommendations made above, the Committee would like to invite the programme team to present their updated programme to the next meeting of the Programmes Committee (Tuesday, 30th November 2021).

Further discussion around the inclusion of primer modules and the request for Programme Specific Regulations will be referred to the Regulations and Policy Review Group for consideration.

7 Major Modifications to Existing Programmes

Faculty of Engineering

- 7.1 **PC.2021.06 Department of Computing – Module ‘Advanced Robotics’ (COMP97031/ COMP9703/ COMP70003)**
MEng Computing (G401)
MEng Computing (Artificial Intelligence and Machine Learning) (G700)

MEng Computing (Computation in Biology and Medicine) (G430)
 MEng Computing (Management and Finance) (G501)
 MEng Computing (Visual Computing and Robotics) (GG47)
 MEng Computing (International Programme) (G402)
 MEng Computing (Software Engineering) (G600)
 MEng Computing (Security and Reliability) (G610)
 MEng Mathematics and Computer Science (GG41)
 MSc Artificial Intelligence (G5T1)
 MSc Advanced Computing (G5U0)
 MSc in Computing (Management and Finance) (G5U11)
 MSc in Computing (Artificial Intelligence and Machine Learning) (G5U10)
 MSc in Computing (Software Engineering) (G5U16)
 MSc in Computing (Security and Reliability) (G5U21)
 MSc in Computing (Visual Computing and Robotics) (G5U13)

7.1.1 The Programmes Committee considered a proposal from the Department of Computing make an in-session modification to withdraw the elective module 'Advanced Robotics' from the above programmes with immediate effect.

7.1.2 This module will be withdrawn from the programmes listed above. This module is no longer required and it will be superseded in Spring term 21/22 by a new module, "Robot Learning and Control". In addition, the lecturer has left the College.

7.1.2 The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee for approval with immediate effect.

7.2 PC.2021.07 Department of Civil and Environmental Engineering – Module 'Stability and Failure of Composite Structures' (CIVE97155)

MSc Concrete Structures (H2A2)
 MSc General Structural Engineering (H2A1)
 MSc Structural Steel Design (H2U5)

7.2.1 The Programmes Committee considered a proposal from the Department of Civil and Environmental Engineering to make an in-session modification to withdraw the module 'Stability and Failure of Composite Structures' from the above programmes with immediate effect.

7.2.2 The member of staff solely responsible for the delivery of this module is leaving College before the end of the 2020-2021 academic year. The module cannot be delivered by any of the remaining staff.

7.2.3 The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee for approval with immediate effect.

7.3 PC.2021.08 Department of Computing – Module 'System Performance Engineering' (COMP60017/COMP97103)

MSc Computing (G5U6)

7.3.1 The Programmes Committee considered a proposal from the Department of Computing to make an in-session modification to withdraw the elective module 'System Performance Engineering' from the above programme with immediate effect.

7.3.2 The module 'System Performance Engineering' is an optional module and over the past years very few students in these cohorts have taken it. The Department would like to withdraw the module from the MSc Computing programme to ease timetabling and other logistics.

7.3.3 The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee for approval with immediate effect.

Imperial College Business School

7.4 PC.2021.09 MRes Business (1Y and 2Y)

Advanced Optimisation
Demand and Revenue Management
Dynamic Programming
Empirical Marketing Models
Macroeconomics 1
Macroeconomics 2
Modelling

7.4.1 The Programmes Committee considered a proposal from the Business School to make and in-session modification to introduce new elective modules delivered by the collaborative partner London Business School (LBS) with immediate effect.

7.4.2 The Programmes Committee agreed to recommend the proposal to the Quality Assurance and Enhancement Committee for approval with immediate effect.

8 Chair's Action

Faculty of Engineering

8.1 Major modification (Effective October 2021), Department of Computing – All Undergraduate Programmes

To consider a proposal from the Department of Computing to make changes to the programme structure to the above programmes including: the withdrawal of three core modules in year 1 ('Mathematics 1: Foundations', 'Discrete Mathematics' and 'Reasoning about Programs'), the introduction of new core modules in year 1 ('Calculus', 'Linear Algebra' and 'Logic and Discrete Mathematics'), the introduction of new module 'Symbolic Reasoning' in year 2 and module title changes to two modules ('Mathematics 2: Probability and Statistics' changes to 'Probability and Statistics' and 'Mathematics 3: Computational Techniques' changes to 'Computational Techniques') with effect from October 2021.

8.2 Major modification (Effective October 2021), MEng Biomedical Engineering/MEng Molecular Bioengineering

To consider a proposal from the Department of Bioengineering to make changes to the Learning Outcomes for the Maths 2 and Maths and Engineering 2 Modules from:

Change the Learning Outcomes for the Maths 2 and Maths and Engineering 2 Modules from:

Mathematics 2

Upon successful completion of this module you will be able to:

- Carry out calculations involving the differentiation of functions of two or more variables
- Define and use the grad, div and curl vector operators and explain their relevance to physical and biological processes
- Evaluate simple line, double and volume integrals and carry out changes of variable in multiple integrals
- State Green's, Gauss' and Stokes' theorems and be able to apply these theorems to biological and engineering problems;
- Carry out calculations involving the Dirac delta function, the Heaviside, square wave, tent, sgn, and auto-correlation functions;
- Perform matrix manipulations and compute eigenvalues and eigenvectors.
- Apply the previously described mathematical methods, tools and notations in the analysis and solution of mathematical problems described in a biomedical context.

Maths and Engineering 2

Upon successful completion of this module, you will be able to:

- Use advanced calculus techniques including the differentiation of functions of two or more variables; grad, div and curl vector operators; line, double and volume integrals
- State Green's, Gauss' and Stokes' theorems and be able to apply these theorems to biological and engineering problems;
- Carry out calculations involving the Dirac delta function, the Heaviside, square wave, tent, sgn, and auto-correlation functions;
- Calculate Fourier and Laplace transforms, find their inverse using the convolution theorem and use the transforms to solve PDEs and ODEs.
- Perform matrix manipulations and compute eigenvalues and eigenvectors.
- Understand and explain applications of signal processing and control systems in biomedical engineering - this includes in imaging techniques, and describing physiological signals.
- Model or represent a signal and/or control system using either mathematical expressions or simulations in Matlab, or an equivalent programming language.
- Analyse signals quantitatively and with the use of computational methods.
- To:

Mathematics 2

Upon successful completion of this module you will be able to:

- Differentiate functions of two or more variables, evaluate simple line, double and volume integrals and carry out changes of variable in multiple integrals.
- Define and calculate the vector operators grad, div and curl, and state Green's, Gauss' and Stokes' theorems involving those operators.
- Derive and classify partial differential equations, recognizing the importance of boundary conditions.
- Apply standard methods to solve partial differential equations and verify solutions.
- Interpret matrices as performing linear transformations and analyse the properties of these transformations.
- Explain the significance of eigenvectors and eigenvalues of matrices, and perform eigendecomposition and diagonalisation.
- Describe and apply simple methods for numerical integration.
- Apply the previously described mathematical methods, tools and notation in the analysis and solution of mathematical problems described in a biomedical context.
- And:

Maths and Engineering 2

Upon successful completion of this module, you will be able to:

- Differentiate functions of two or more variables, evaluate simple line, double and volume integrals and carry out changes of variable in multiple integrals.
- Define and calculate the vector operators grad, div and curl, and state Green's, Gauss' and Stokes' theorems involving those operators.
- Derive and classify partial differential equations, recognizing the importance of boundary conditions and apply standard methods to solve and verify the solutions of such equations
- Explain and use concepts related to matrices including: linear transformations performed by a matrix, the significance of eigenvectors and eigenvalues of matrices, eigendecomposition and diagonalisation
- Describe and apply simple methods for numerical integration.
- Explain applications of signal processing and control systems in biomedical engineering - this includes in imaging techniques, and describing physiological signals.

- Model or represent a signal and/or control system using either mathematical expressions or simulations in Matlab, or an equivalent programming language.
- Analyse signals quantitatively and with the use of computational methods.

8.3 Major modification (Effective October 2021), Dyson School of Design Engineering, MEng Design Engineering

DESE96014 / 60007 Consultancy for Mars Settlement Design
DESE61002 Digital Product Design Engineering
DESE61003 Audio Experience Design
DESE60005 Robotics

To consider a proposal from the Dyson School of Design Engineering to make changes to the programme structure with immediate effect:

Consultancy for Mars Settlement Design

Remove elective module

Digital Product Design Engineering

Remove elective module

Audio Experience Design

Add existing elective module to the programme

Robotics

Replace with Robotics 1: Introduction to Robotics and Robotics 2: Applied Robotics

Faculty of Natural Sciences

8.4 Major modification (Effective October 2021), MSc Mathematics and Finance

To add 2 new elective modules:

- Data Science for Fintech Regtech and Suptech: Methodological Foundations and Key Applications
- Quantum Computing in Finance

8.5 Major modification (Effective October 2020), UG Life Sciences

To approve a new module from the Department of Life Sciences where a student is Short 1 ECTS (the existing 8.5 ECTS module has been updated with an additional presentation assessment). It has occurred as the module they took this year to replace a failed one last year has a 1 credit lower tariff (old curriculum to new curriculum).

Retrospectively create a new module for 2020/21, which would be based on/include all aspects of the LIFE95018 Life Sciences Tutored Dissertation module (which the student has already completed in 2020/21), but with an added presentation assessment to accrue an additional ECTS. The 'new' version of the module would total 9.5 ECTS (as opposed to the 8.5 ECTS version of the module they were registered for); it is proposed that the additional assessment would be due **prior** to progression to Year 3 of the programme (although I'd recommend that if the student was unable to complete it in time, it shouldn't block progression to Year 3 but the expectation that they complete the assessment would stand). The 9.5 ECTS module would not be open for registration to any other students, and would only be used in this one exceptional circumstance.

8.6 Major modification (Effective October 2021), Joint Maths and Computing

To consider a proposal from the Department of Mathematics to make minor modifications to the following modules with immediate effect (October 2021)

Faculty of Medicine

8.7 Major modification (Effective October 2020), MSc Translational Neuroscience, Department of Brain Sciences

The proposed modification is small but impactful: removing the 'must pass' criterion for all modules (excluding the dissertation) and inserting a must-attempt- effective for this year.

8.8 Major modification (Effective October 2022), MBBS- Clinical Placement III

Amendment to the Pre-Foundation Assistantship and electives dates and creation of a single 5-week revision and exams block from 2022-23.

The School of Medicine would like to communicate the change to Year 5 students at the introductory webinar of 7 July 2021, which is the commencement of their 2021-22 academic year, meaning they have received a full academic year of notice.

8.9 Major modification (Effective October 2021), MSc Health Policy

The programme documentation has been updated to ensure we continue to meet all our contractual obligations to the Department of Health and Social Care and ensuring we align our blended learning model with the OFS premium that the programme attracts. These institutions have also requested we take significantly higher numbers of participants this year, as we update the programme in partnership with the Digital Learning Hub, to provide a highly engaging learning experience for our participants.

8.10 Major modification (Effective October 2022), Medical Research Council Doctoral Training Partnership Studentships

To consider a proposal from the Faculty of Medicine to make change to the above programme title to: Medical Research Council MultiSci Doctoral Training Partnership Studentships – abbreviated to 'MRC MultiSci DTP Studentship'.

Centre for Higher Education Research and Scholarship

8.11 I-Explore module EDUC60001 The Science of Learning

The module was approved with a numerical grade mode however has been communicated to students and marked as pass/fail. The change would be for the 2020/21 academic year only.

Short Courses

8.12 Youth Leader Champions – Closed Short Course (Effective September 2021)

To consider a proposal from the Department of Public Engagement with Research, Societal Engagement, Academic Partnerships to introduce a new closed short course with effect from September 2021.

The aim of this programme is to empower local youth leaders to feel confident in engaging young people with science and to develop the skills that will help them deliver science related activity in their communities.

The course is open to qualified youth workers and those working towards their youth worker qualification, who work with young people aged 13 – 18 in Hammersmith & Fulham, Kensington & Chelsea and Westminster.

8.13 Short Course- Mandated Deferrals Support Package (Effective April 2021)

To consider a proposal from the Education office to introduce a bespoke and closed module to be offered as part of the College's Mandated Deferral Support Package. The package is offered to 130 offer holders within the Departments of Physics, Mechanical

Engineering and Computing to whom we were not able to offer a place in AY 20/21 due to the introduction of CAGs for 2020 A-Levels.

Suspended Programmes

- 8.14 MSc Petroleum Geoscience (F6UK) from October 2021 onwards
- MSc Petroleum Engineering (J9U7) from October 2022 onwards

Withdrawn Programmes

- 8.15 MRes Bioimaging Sciences (F1U6) from October 2021 onwards

9 Dates of Future Meetings

- Tuesday 30 November 2021, 13:00-16:00
- Tuesday 25 January 2022, 10:00-13:00
- Tuesday 29 March 2022, 10:00-13:00
- Tuesday 21 June 2022, 10:00-13:00