

## RECORD OF EXPEDITED PROGRAMME APPROVAL – SUMMER 2020

|                                  |  |
|----------------------------------|--|
| <b>Name of School:</b>           | SMSAS  |
| <b>Date of Approval Meeting:</b> | 20/7/2020  |
| <b>Attendees:</b>                | Dr Samantha Winter – Associate Dean Education for Faculty of Sciences<br>Dr Alexa Laurence School Director of Education<br>Dr Jo Stoner – Faculties Support Office   |
| <b>1.</b>                        | <p><b>Rationale for Amendment/s and Record of Discussion on School's Reflection on the Guidance Points</b></p> <p><b>Content of the programme of study</b></p> <p>1.1. Which module/s are at risk of compromised or non-delivery in Autumn due to Covid-19? These must be prioritised for consideration.</p> <p>The following optional modules that were planned for delivery in 2020/21 will not be offered.</p> <p>BSc Mathematics, BSc Mathematics and Statistics and MMath Mathematics only:</p> <p>MA5504 Hamiltonian and Lagrangian Dynamics – originally selected by 34 students</p> <p>MA567/MA7532 Topology– originally selected by 18/not known students</p> <p>BSc Mathematics and MMath Mathematics only:</p> <p>MA561/MA603 Introduction to Lie Groups and Algebras – originally selected by 4/6 students</p> <p>MA568/MA7526 Orthogonal Polynomials and Special Functions – originally selected by 8/1 students</p> <p>1.2. Are there any other programme components, such as placements or field trips, that need to be reduced, amended or delivered in a different year?</p> <p>No</p> <p>1.3. If modules are rested or withdrawn, how will this impact upon module choice and increase in numbers for the remaining modules? Timetabling issues?</p> <p>The students have other optional modules available to choose from and removing these modules will make the cohort size of the remaining modules viable to teach.</p> <p>The Stage 3 and 4 students will be able to study topics in the rested modules in Discovering and Communicating Mathematics (MA6504/MA7504) via the independent project if they choose.</p> |

1.4. Which Stages will be affected?

BSc Mathematics and Statistics: Stages 2 and 3; BSc Mathematics: Stage 2 and 3; MMath Mathematics: Stages 3 and 4

1.5. Could the amendments become permanent? Aim to review in January 2021.

The Stage 2 modules will be reinstated as soon as resources allow.

For the BSc Mathematics and the MMath Mathematics, the School operates a rolling programme of Stage 3 and 4 modules to allow it to also offer the MSc in Mathematics and Its Applications. It is unlikely that the modules that are being rested this year will be permanently removed from the programmes.

1.6. Where the proposed amendments present significant changes across the School/suite of programmes, it may be necessary to consult with an external adviser, for example, an External Examiner. The Associate Dean, FSO or QAO can provide advice on this. For example, changes to or inability to meet the programme learning outcomes

N/A

**Length of the programme of study**

2.1. Are there changes to the anticipated length of the programme to take account of particular assessment methods or placements that might be core requirements for the programme which can only be undertaken in a normal operating environment?

No

**How the programme of study will be delivered**

3.1. To what extent will the programme now be delivered online rather than on campus?

For all UG programmes in the School, it is anticipated that around 20 to 25% of the scheduled hours could be delivered on campus (of the order of 4 hours per week for each Stage of each programme). The way in which this could be achieved would depend on the Stage. In Stage 1, all students would be on campus for around 4 hours of small group tutorials per week. In all other Stages, the School would plan for students to attend one examples class per module per week on campus for all except the largest modules in Stages 2 and 3, where the size of the cohort makes this untenable. *Note: during a meeting with Richard Reece on 17<sup>th</sup> July it became clear that planning to deliver 20-25% of the scheduled hours on campus may not be advisable; the School will reconsider these plans before submitting its phase 2 timetable requests.*

All lecture material will be recorded and made available for asynchronous study. This will be supplemented by online/on-campus synchronous sessions to meet the requirements of the updated module specifications; the School will not teach in Week 7 (Enhancement Week) in the Autumn Term. For some modules, removing teaching from Week 7 will reduce the number of contact hours by between 3 and 4 hours. All changes in contact hours have been identified.

Standard modules will typically be delivered using a mix of online, optional Q&A sessions and online/on-campus examples classes that students are expected to engage with (around 3-4 hours per week in total).

3.2. How will the balance between, lectures, seminars and self-learning change?

Very little change in contact hours, but following a flipped classroom approach.

3.3. What support and resources will be available to support learning that will take place online?

Lecture recordings (50%-100% of usual lecture time), Q&A sessions, examples classes, plus material provided on Moodle under normal circumstances. Synchronous events will be recorded as best as possible using the equipment available. Students will be encouraged to make appointments to speak with staff in place of standard office hours.

3.4. Do the teaching staff have the necessary experience to design and deliver blended learning?

A very small number of staff members have prior experience of blended learning.

3.5. Have staff accessed training in blended learning techniques via the e-Learning Team?

Staff are aware of these training resources and are also accessing external training being provided by the mathematical/statistical community.

3.6. How will the proposed amendments impact upon the student and their overall university experience?

Significant impact

3.7. Are there any barriers to participation for **all** students?

Several of the modules rely on the use of mathematical/statistical/actuarial software. The actuarial software (used by Stage 3 UG students in the Spring term) can be accessed on campus only; if the current situation continues, students studying remotely will be disadvantaged. This will need to be addressed in such circumstances. The remaining software is either freely available or available for students to download; it requires access to suitable equipment.

3.8. How have you consulted on the proposed changes with current students?

The affected students will be consulted once the plans have been finalised; time has not yet allowed. The availability of a project module in both Stage 3 and Stage 4 means that any affected student can study a topic of their choice within that module to replace any rested module.

#### **How the programme of study will be assessed**

4.1. Do the methods of assessment need to be changed?

Yes

4.2. Can the student still meet the programme and module learning outcomes?

Yes. The note about Prophet above is the only possible exception, although it is not mentioned as a programme LO. Prophet is a USP for Kent. Omitting it would not affect the accreditation of the programme, however, the students would miss out on exposure to this industry-standard software, which is an advertised aspect of the programme.

4.3. Are there any barriers to participation for all students in terms of assessment method and timing?

We don't believe so. However, the Institute and Faculty of Actuaries needs to approve changes to modules leading to professional exemptions, including the assessment method.

#### **Award**

5.1. Will there be any changes to the qualification that is awarded, for example professional accreditation, as a result of the pandemic? If professional accreditation has not been confirmed for 2020-21 then this should be made clear.

No – but note that the Institute and Faculty of Actuaries are reviewing their own guidelines and requirements for accredited universities, but we do not yet know what these will be.

#### **Possible locations**

6.1. Due to social distancing measures, will teaching occur at an alternative location to that currently described in the programme specification?

No

6.2. How will programme delivery change if public health guidance alters, eg, return to a full lockdown or 100% on campus teaching can resume?

Full lockdown – all sessions will be delivered as planned but online, with the exception of the Prophet sessions in the Spring term. These will need to be considered if this should happen.

Return to 100% on-campus teaching – teaching will continue, using either a flipped classroom approach with the timetable in place at the time or reverting to standard delivery.

#### **Cost of the programme of study**

7.1. Will the costs to the student change? Information about the cost of a course should be explicit up front and should not increase once the programme has started. Providers should also be clear about any extra costs that students might need to bear to access resources or buy equipment as a result of the changes to teaching.

All students will require access to a laptop/PC. In some modules, printed notes would be provided. These will not be available and the student will need to print them if they

|           |   |                   |                                     |
|-----------|---|-------------------|-------------------------------------|
|           | <p>wish to do so. Students on the Actuarial Science programme receive printed copies of the ActEd course notes. Negotiations are taking place to provide these online.</p> <p><b>Other Considerations</b></p> <p>8.1. How will pastoral and academic support be provided to students?</p> <p>Each student will be allocated an Academic Adviser; the School will continue with its Academic Support programme, which will be adjusted to online delivery. The majority of the students will continue with their existing Academic Adviser. Stage 1 students will have small group tutorials with their Academic Adviser. Foundation year students will be allocated an Academic Adviser and several Foundation Year buddies will be appointed (students who have been through the Foundation year themselves).</p> <p>Pastoral support will be provided by Division Professional Services Staff.</p> <p>8.2. Are there any Tier 4 issues? Please discuss with Visa Compliance.</p> <p>Attendance monitoring</p> |                   |                                     |
| <b>2.</b> | <b>List of programmes/modules requiring amendment/resting (and associate modules)</b>   |                   |                                     |
|           | See 1.1 and spreadsheet attached.   |                   |                                     |
| <b>3.</b> | <b>Will there be any changes to the following CMA material information?</b><br><i>[Tick all that apply]</i>   |                   |                                     |
|           | Programme title   |                   | <input type="checkbox"/>            |
|           | Entry requirements  |                   | <input type="checkbox"/>            |
|           | Compulsory modules  |                   | <input type="checkbox"/>            |
|           | Optional modules  |                   | <input checked="" type="checkbox"/> |
|           | Delivery mode   |                   | <input type="checkbox"/>            |
|           | Contact hours   |                   | <input checked="" type="checkbox"/> |
|           | Methods of assessment   |                   | <input checked="" type="checkbox"/> |
|           | Type of award (eg, BA to BSc)   |                   | <input type="checkbox"/>            |
|           | Location of study   |                   | <input type="checkbox"/>            |
|           | Length of programme   |                   | <input type="checkbox"/>            |
|           | Accrediting body  |                   | <input type="checkbox"/>            |
|           | Tuition fees  |                   | <input type="checkbox"/>            |
|           | Costs to students   |                   | <input checked="" type="checkbox"/> |
|           | Change in how/when fees/costs are paid by students  |                   | <input type="checkbox"/>            |
|           | Change to accommodate offer   |                   | <input type="checkbox"/>            |
|           | Availability of funding and support   |                   | <input type="checkbox"/>            |
| <b>4.</b> | <b>List of Approved Amendments</b>  |                   |                                     |
|           | <p><b>All amendments approved.</b></p> <p><b>20 July 2020</b></p>   |                   |                                     |
| <b>7.</b> | <b>Actions:</b>   | <b>Action by:</b> | <b>By:</b>                          |
|           | <i>If approved:</i>   |                   |                                     |

|  |   |  |  |
|--|---|--|--|
|  | <ul style="list-style-type: none"><li>• <i>Inform applicants</i></li><li>• <i>Inform existing students</i></li><li>• <i>Inform CSAO</i></li><li>• <i>Inform Timetabling</i></li><li>• <i>Inform EMS</i></li><li>• <i>Review on [insert date]</i></li><li>• <i>Other</i></li></ul> |  |  |
|--|---|--|--|

**RECORD OF EXPEDITED PROGRAMME APPROVAL – SUMMER 2020**

|                                  |   |
|----------------------------------|---|
| <b>Name of School:</b>           | SMSAS   |
| <b>Date of Approval Meeting:</b> | 20/7/2020   |
| <b>Attendees:</b>                | <b>Dr Gurprit Lall – Associate Dean Graduate Studies for Faculty of Sciences</b><br><b>Andrew James – School Director of Graduate Studies</b><br><b>Dr Hannah Huxley – Faculties Support Office</b>   |
| <b>1 .</b>                       | <b>Rationale for Amendment/s and Record of Discussion on School's Reflection on the Guidance Points</b>   |
|                                  | <p><b>Content of the programme of study</b></p> <p>1.7. Which module/s are at risk of compromised or non-delivery in Autumn due to Covid-19? These must be prioritised for consideration.</p> <p>The following optional modules that were planned for delivery in 2020/21 will not be offered:</p> <p>MSc Mathematics and its Applications:</p> <p>MA7532 Topology<br/>MA603 Introduction to Lie Groups and Algebras<br/>MA7526 Orthogonal Polynomials and Special Functions</p> <p>International MSc Mathematics and its Applications:</p> <p>MA567 Topology<br/>MA561 Introduction to Lie Groups and Algebras<br/>MA568 Orthogonal Polynomials and Special Functions</p> <p>1.8. Are there any other programme components, such as placements or field trips, that need to be reduced, amended or delivered in a different year?<br/>No</p> <p>1.9. If modules are rested or withdrawn, how will this impact upon module choice and increase in numbers for the remaining modules? Timetabling issues?</p> <p>Module choice is decreased but removing these modules will make the cohort size of the remaining modules viable to teach.</p> <p>1.10. Which Stages will be affected?</p> <p>MSc Mathematics and its Applications; International MSc Mathematics and its Applications (both Stages)</p> |

1.11. Could the amendments become permanent? Aim to review in January 2021.

For the MSc Mathematics and its Applications programmes, the School operates a rolling programme of level 6 and level 7 modules to allow it to also offer the BSc in Mathematics and the MMath in Mathematics. It is unlikely that the modules that are being rested this year will be permanently removed from the programmes.

1.12. Where the proposed amendments present significant changes across the School/suite of programmes, it may be necessary to consult with an external adviser, for example, an External Examiner. The Associate Dean, FSO or QAO can provide advice on this. For example, changes to or inability to meet the programme learning outcomes

N/A

### **Length of the programme of study**

2.2. Are there changes to the anticipated length of the programme to take account of particular assessment methods or placements that might be core requirements for the programme which can only be undertaken in a normal operating environment?

No

### **How the programme of study will be delivered**

3.9. To what extent will the programme now be delivered online rather than on campus?

For all PG programmes in the School, it is anticipated that around 20 to 25% of the scheduled hours could be delivered on campus (of the order of 4 hours per week for each Stage of each programme). The exception would be where students are taking modules that are co-taught with large UG modules, in which case the delivery would be wholly online (reducing the on-campus delivery by around 1 hour per week). *Note: during a meeting with Richard Reece on 17<sup>th</sup> July it became clear that planning to deliver 20-25% of the scheduled hours on campus may not be advisable; the School will reconsider these plans before submitting its phase 2 timetable requests.*

All lecture material will be recorded and made available for asynchronous study. This will be supplemented by online/on-campus synchronous sessions to meet the requirements of the updated module specifications; the School will not teach in Week 7 (Enhancement Week) in the Autumn Term. For some modules, removing teaching from Week 7 will reduce the number of contact hours by between 3 and 4 hours. All changes in contact hours have been identified.

Standard modules will typically be delivered using a mix of online, optional Q&A sessions and online/on-campus examples classes that students are expected to engage with (around 3-4 hours per week in total). Exceptions to this include the research-based modules and also modules that require the use of the Prophet software, which will need to be delivered on campus.

3.10. How will the balance between lectures, seminars and self-learning change?

Very little change in contact hours, but following a flipped classroom approach.

3.11. What support and resources will be available to support learning that will take place online?

Lecture recordings (50%-100% of usual lecture time), Q&A sessions, examples classes, plus material provided on Moodle under normal circumstances. Synchronous events will be recorded as best as possible using the equipment available. Students will be encouraged to make appointments to speak with staff in place of standard office hours.

3.12. Do the teaching staff have the necessary experience to design and deliver blended learning?

A very small number of staff members have prior experience of blended learning.

3.13. Have staff accessed training in blended learning techniques via the e-Learning Team?

Staff are aware of these training resources and are also accessing external training being provided by the mathematical/statistical community.

3.14. How will the proposed amendments impact upon the student and their overall university experience?

Significant impact

3.15. Are there any barriers to participation for **all** students?

Several of the modules rely on the use of mathematical/statistical/actuarial software. The actuarial software (usually used by PG students in the Autumn and Spring terms) can be accessed on campus only; the plans are currently to move these modules to the Spring and Summer terms. If the current situation continues, students studying remotely will be disadvantaged. This will need to be addressed in such circumstances. The remaining software is either freely available or available for students to download; it requires access to suitable equipment.

3.16. How have you consulted on the proposed changes with current students?

There are no students progressing from Stage 1 of the International MSc in Mathematics and its Applications, so the MSc in Mathematics and its Applications optional modules have not yet been declared. Only optional modules are affected.

Arrangements for modules that must be delivered on campus will be explained to Actuarial Science students on arrival.

**How the programme of study will be assessed**

4.1. Do the methods of assessment need to be changed?

Yes

4.4. Can the student still meet the programme and module learning outcomes?

Yes. The note about Prophet above is the only possible exception, although it is not mentioned as a programme LO. Prophet is a USP for Kent. Omitting it would not affect

the accreditation of the programme, however, the students would miss out on exposure to this industry-standard software, which is an advertised aspect of the programme.

4.5. Are there any barriers to participation for all students in terms of assessment method and timing?

We don't believe so. However, the Institute and Faculty of Actuaries needs to approve changes to modules leading to professional exemptions, including the assessment method.

#### **Award**

5.1. Will there be any changes to the qualification that is awarded, for example professional accreditation, as a result of the pandemic? If professional accreditation has not been confirmed for 2020-21 then this should be made clear.

No – but note that the Institute and Faculty of Actuaries are reviewing their own guidelines and requirements for accredited universities, but we do not yet know what these will be.

#### **Possible locations**

6.1. Due to social distancing measures, will teaching occur at an alternative location to that currently described in the programme specification?

No

6.2. How will programme delivery change if public health guidance alters, eg, return to a full lockdown or 100% on campus teaching can resume?

Full lockdown – all sessions will be delivered as planned but online, with the exception of the Prophet sessions in the Spring and Summer terms (see 3.7). These will need to be considered if this should happen.

Return to 100% on-campus teaching – teaching will continue, using either a flipped classroom approach with the timetable in place at the time or reverting to standard delivery.

#### **Cost of the programme of study**

7.1. Will the costs to the student change? Information about the cost of a course should be explicit up front and should not increase once the programme has started. Providers should also be clear about any extra costs that students might need to bear to access resources or buy equipment as a result of the changes to teaching.

All students will require access to a laptop/PC. In some modules, printed notes would be provided. These will not be available and the student will need to print them if they wish to do so. Students on the Actuarial Science programme receive printed copies of the ActEd course notes. Negotiations are taking place to provide these online.

#### **Other Considerations**

8.1. How will pastoral and academic support be provided to students?

|            | <p>Each student will be allocated an Academic Adviser; the School will continue with its Academic Support programme, which will be adjusted to online delivery.</p> <p>Pastoral support will be provided by Division Professional Services Staff.</p> <p>8.2. Are there any Tier 4 issues? Please discuss with Visa Compliance.</p> <p>Attendance monitoring</p>   |        |                   |            |  |
|------------|--|--------|-------------------|------------|--|
| <b>2</b>   | <b>List of programmes/modules requiring amendment/resting (and associate modules)</b>  |        |                   |            |  |
|            | See 1.1 and spreadsheet attached.  |        |                   |            |  |
| <b>3</b>   | <b>Will there be any changes to the following CMA material information?</b>  |        |                   |            |  |
|            | <i>[Tick all that apply]</i>   |        |                   |            |  |
|            | Programme title <input type="checkbox"/>   |        |                   |            |  |
|            | Entry requirements <input type="checkbox"/>  |        |                   |            |  |
|            | Compulsory modules <input type="checkbox"/>  |        |                   |            |  |
|            | Optional modules <input checked="" type="checkbox"/>   |        |                   |            |  |
|            | Delivery mode <input type="checkbox"/>   |        |                   |            |  |
|            | Contact hours <input checked="" type="checkbox"/>  |        |                   |            |  |
|            | Methods of assessment <input checked="" type="checkbox"/>  |        |                   |            |  |
|            | Type of award (eg, BA to BSc) <input type="checkbox"/>   |        |                   |            |  |
|            | Location of study <input type="checkbox"/>   |        |                   |            |  |
|            | Length of programme <input type="checkbox"/>   |        |                   |            |  |
|            | Accrediting body <input type="checkbox"/>  |        |                   |            |  |
|            | Tuition fees <input type="checkbox"/>  |        |                   |            |  |
|            | Costs to students <input checked="" type="checkbox"/>  |        |                   |            |  |
|            | Change in how/when fees/costs are paid by students <input type="checkbox"/>  |        |                   |            |  |
|            | Change to accommodate offer <input type="checkbox"/>   |        |                   |            |  |
|            | Availability of funding and support <input type="checkbox"/>   |        |                   |            |  |
| <b>4</b>   | <b>List of Approved Amendments</b>   |        |                   |            |  |
|            | <p>As we continue to plan for next year, we have one more change to a programme we would like to introduce under EPA this year please to ensure choice for students in the Spring term. This is one change that we might consider making permanent for subsequent years.</p> <p>BSc Mathematics with Secondary Education: add an optional module at Stage 2<br/>MA5509 Numerical Methods</p> <p>Spreadsheet Excerpt</p> <table border="1"> <thead> <tr> <th>module</th> <th>Confirmed actions</th> </tr> </thead> <tbody> <tr> <td>Statistics</td> <td></td> </tr> </tbody> </table> | module | Confirmed actions | Statistics |  |
| module     | Confirmed actions  |        |                   |            |  |
| Statistics |  |        |                   |            |  |

|                                  |   |
|----------------------------------|---|
| MA538                            | MA538 is resting this year.   |
| <b>Actuarial Science</b>         |   |
| <b>Maths</b>                     |   |
| MA567/MA7532                     | Rest in 20/21   |
| MA607/967                        | Assessment: standard. Remove MA5504 as a pre-requisite  |
| <b>Important:</b>                |   |
| <b>Other rested modules</b>      | 1. Introduction to Lie Groups and Algebras MA561/MA603 (4 students / 6 students). This module is supposed to be taught in the Spring term and students could be encouraged to take Groups and Representations (MA576/MA776) instead. It would actually make more sense on pedagogical grounds |
|                                  | 2. Orthogonal Polynomials and Special Functions MA568/ MA7526 (8/1). This is another Spring module. The topic would be briefly mentioned in Quantum Mechanics MA607/MA967 (and some aspects in MA692/MA792).  |
|                                  | 3. Topology MA567 (18). This is an Autumn term module. Risk mitigation (staff capacity). There will be stage 3 projects available on this topic.  |
|                                  | 4. MA5504 (34). Spring term Risk mitigation (staff capacity)  |
|                                  |   |
|                                  | To compensate: allow stage 4 MMath students with appropriate background to take up to two stats modules, such as the Autumn term modules Stochastic Processes (MA836) and/or Probability & Classical Inference (MA881) .  |
|                                  |   |
| <b>Impact of resting modules</b> | <b>on MMath students</b>  |
|                                  | The students will choose 4 or 5 modules from 7 modules.   |
|                                  | This means that:  |
|                                  | Three students swap one module for a choice of two others.  |
|                                  | Two students swap one module for a choice of four others + the stats options (one student will choose the stats options).   |
|                                  | <b>on Stage 3 students</b>  |
|                                  | Too many students to go through individually, but they have more choice than Mmath students anyway.   |

|   |  |                   |            |
|---|--|-------------------|------------|
|   | Only 1 Maths and Stats student will be impacted by Topology not running and they will still have choice.   |                   |            |
|   | <b>on Stage 2 students</b>   |                   |            |
|   | Maths students will choose between the other optional modules. Maths and Stats students will have a choice of 4 out of 5 optional modules.   |                   |            |
| <p><b>All amendments approved.</b></p> <p><b>20 July 2020</b></p> |  |                   |            |
| <b>7</b>  | <b>Actions:</b>  | <b>Action by:</b> | <b>By:</b> |
| .   | <p><i>If approved:</i></p> <ul style="list-style-type: none"> <li>• <i>Inform applicants</i></li> <li>• <i>Inform existing students</i></li> <li>• <i>Inform CSAO</i></li> <li>• <i>Inform Timetabling</i></li> <li>• <i>Inform EMS</i></li> <li>• <i>Review on [insert date]</i></li> <li>• <i>Other</i></li> </ul> |                   |            |