ST GEORGE'S, UNIVERSITY OF LONDON

VALIDATION REPORT

BSc/MSci Biomedical Science

29th September 2016

Panel

Dr Iain Beith (chair)	Head of School of Allied Health, Midwifery and Social Care, Kingston University and St George's, University of London
Dr Debra Bevitt	Head of School of Biomedical Sciences, Medical School, University of Newcastle upon Tyne
Professor Hannah Cock	Professor of Epilepsy & Medical Education, and St George's, University of London and Consultant Neurologist, St George's University Hospitals NHS Foundation Trust
Dr Campbell Gourlay	Senior Lecturer in Cell Biology, School of Biosciences, University of Kent
Kat Telford	MBBS (P year) – student panel member
Alan Wainwright	IBMS Executive Head of Education
<u>In attendance</u>	
Derek Baldwinson	Governance Legal and Assurance Services, SGUL

Introduction and Context

1) The BSc (Hons) Biomedical Science was last reviewed in March 2013 by a joint SGUL/IBMS panel. The review panel had recommended that the accreditation and approval periods for the programme should be extended for five years with the next review taking place in academic year 2017-18. This recommendation was subsequently endorsed by the IBMS Education and Professional Standards Committee and by the SGUL Senate.

2) Subsequent to the 2013 review, an MSci Biomedical Science programme was approved by SGUL. Years 1 and 2 of the MSci (or levels 4 and 5) were the same as the first two years of the BSc Biomedical Science programme. Year 3 of the MSci (or level 6) was comprised of:
   a) final year modules drawn from the BSc Biomedical Science;
   b) Common Postgraduate Framework (CPF) modules validated at level 6 for inclusion in the MSci; and
   c) an additional specialist module developed for the MSci.
3) The final year comprised a 105 credit research project and a 15 credit CPF module. The MSci was validated by SGUL in April 2015 and subsequently accredited by the IBMS.

4) Since the MSci validation, the Biomedical Science programme team has undertaken a curriculum review with the intention of launching a revalidated programme to supersede the existing MSci and BSc programmes for 2017 entry. The primary aim of the curriculum review has been to reduce the volume of co-teaching with the MBBS programme and thereby provide a more bespoke and discrete learning experience for students. The new BSc programme will also include additional pathways and named awards based on existing modules.

5) The purpose of the event was to revalidate, if appropriate, the revised BSc and MSci Biomedical Science programmes. The revalidation was not a con-joint event with the IBMS. IBMS accreditation would be sought when SGUL-approval of the BSc and MSci had been achieved.

Conduct of the meeting

6) Prior to the meeting, the panel was provided with the documents listed in annex A. The panel held a private meeting at which it confirmed the range of issues that it wished to discuss with the team responsible for the development and delivery of the BSc and MSci programmes (referred to hereafter as the biomedical science team). The panel then met with seven biomedical science students, three of whom were recent graduates from the BSc. After the student meeting, the panel met with the members of the biomedical science team listed in annex B.

7) The panel held a second private meeting at which it agreed to recommend approval of the BSc and MSci programmes to Senate. The recommended approval is subject to the condition and recommendations recorded in paragraphs 11 and 12. A summary of the issues discussed with students is provided in paragraphs 13 and 14. A summary of the issues discussed with the biomedical science team is provided in paragraph 15 and subsequent paragraphs.

Decision

8) The panel recommended to Senate that the BSc and MSci Biomedical Science (and the exit qualifications) should be approved for five years. The programmes will next be reviewed (or revalidated) no later than academic year 2021-22 to enable further intakes to enrol on the programme in the subsequent academic year (2022-23).

9) The panel also concluded that the BSc and MSci programmes were compliant with the expectations of the UK Quality Code for Higher Education published by the QAA. This conclusion was in part dependent on the team responding satisfactorily to the technical condition relating to learning outcomes for exit qualifications.

10) The biomedical science team was commended by panel for the quality of the programme documentation which described the arrangements for the design and delivery of the programmes clearly and succinctly.

Conditions and recommendations

11) The panel's recommendation to Senate that the BSc and MSci programmes should be approved is subject to the following condition and recommendations:

Condition 1
The team should put in place structures and processes that will ensure that all students are supported to make informed choices when selecting the modules and pathways (paragraph 26 and 27).

Recommendation 1
The panel recommended that the team should explore the feasibility of making the project a requirement for all pathways and awards (paragraph 31).

Recommendation 2
The panel recommended that the team review and, if appropriate, reduce the range of award titles available within the programme (paragraph 29).

Recommendation 3
The team was encouraged to review the content and delivery of the year 3 (level 6) modules to emphasise the way in which these modules develop knowledge and skills relevant to biomedical science. This emphasis might, for example, be achieved by involving biomedical scientists in the delivery of the clinically-focussed modules (paragraphs 34 and 35).

Recommendation 4
The team was encouraged to develop processes to assure the quality of the lectures that are delivered separately to medical and biomedical science students. Processes of this kind will ensure that the content of lectures is relevant to and meets the needs of both groups of students (paragraph 36).

Recommendation 5
The panel recommended that the team investigate flexibility with SGUL regulations and quality assurance processes to reduce the burden on staff of carrying out double-marking. (NB: General Regulation 11.7 states that written assessments, whether conducted under supervised or unsupervised conditions, shall be marked in detail by one Internal Examiner or Assessor, with at least one other Internal Examiner or Assessor having an overview of the work submitted for assessment. The precise rules for moderation shall be detailed in the Scheme of Assessment for the programme in question.)

Recommendation 6
The panel recommended that the team explore ways of facilitating extracurricular opportunities for students to gain practical experience of working in laboratories at St George's, in the wider NHS and in industry. Opportunities might include short summer placements, shadowing and work placements in industry (paragraph 37).

Technical conditions

a) **The definitive document should include the programme learning outcomes for all Intermediate awards.**

b) **Year 1 and 2 Schemes of assessment should be presented for UMBEC approval.**

c) **The Senior External Examiner should be appointed from a department that offers an IBMS -accredited biomedical science programme.**

12) The deadline for responding to the conditions and recommendations is 10th November 2016.

DISCUSSION POINTS

MEETING WITH STUDENTS

13) The panel met with seven biomedical science students, three of whom were recent graduates from the BSc.

14) From the discussion with the students, the following points are noted:
    a) The students were aware of the proposed changes to the BSc Biomedical Science and were broadly supportive of the direction of travel. The students supported the intention to create a stronger identity for the BSc whilst retaining the facility for eligible students to transfer to the MBBS. The students did however note that students who selected the clinical sciences pathway might be disadvantaged in the long term if they were unable to secure a place on a medical degree.
    b) The students did note that integration with medicine and interactions with medical students had been a strength of the current programme for social and inter-professional reasons. Attending lectures with a clinical focus had helped some students decide if medicine was really for them.
    c) Some BSc Biomedical Science students who had been intending to apply to transfer to the MBBS would have preferred to select their own level 6 modules rather follow a tightly-defined clinical sciences pathway.
    d) The students were uncertain about whether each of the proposed pathways would attract IBMS accreditation. Accreditation was an important issue for students; students intending to transfer to the MBBS and pursue a medical career wished to graduate from an IBMS accredited BSc Biomedical Science. Students felt that SGUL should facilitate IBMS accreditation for those students who graduated without an accredited degree and subsequently wished to pursue accreditation.
    e) The students were in favour of reducing the amount of shared teaching with the MBBS. The intention to deliver the same lecture on more than one occasion would need to be managed. A repeated lecture would still need to be tailored to the needs of both students and there was also a concern that a repeated lecture might be delivered with less enthusiasm and commitment.
    f) The students were asked if the year 3 modules had a clear biomedical focus in view of the fact that the modules were also available to intercalating medical students. In response the students noted that this depended on the selection of option modules. It was noted that some modules – the global health modules were an example – did not build on material taught in years 1 and 2.
    g) Topics related to personal and professional development including career options and employability were covered in years 1 and 2 although students felt that more could be offered. Shadowing opportunities and summer placements were available but small in number and students would welcome more opportunities of this kind. Students would also welcome the opportunity to carry out a placement in industry if this could be facilitated by SGUL. Students would particular welcome talks from biomedical science alumni on the way in which their careers had developed since graduation.
    h) Students were aware that the new programme would include Personal and Academic Skills modules in years 1 and 2. The students understood that the new modules were essentially a "re-badging" and the students felt that additional support should be offered.
    i) Students were encouraged to maintain a portfolio as a record of their personal development. Many students were unclear about what to include in their portfolio and

neglected the task as a result. An indicative contents page might have helped students understand what to include in the portfolio.

j) Students spent time in teaching laboratories in years 1 and 2 developing a range of practical skills. However not all students felt well prepared to carry out a laboratory-based project in the final year.

k) Students were asked to explain how projects were allocated. A list of project titles were published and students were encouraged to contact the relevant supervisor if the student was interested in a particular project. The supervisors had considerable discretion in terms of the way in which students were selected. Some projects were allocated on a first come first served based whereas other supervisors opted for a more formal interview-based selection process. Students were also able to work with staff to design their own projects.

l) Students were allocated personal tutors and had met with their tutors at defined points in the programme. The students suggested that personal tutors could have a greater role in discussing the student's personal and professional development including possible career options although the students accepted the boundaries related to the role. The students noted that more could be done within SGUL to recognise the personal tutor role.

m) The students were asked for their thoughts on the programme structure. Year 1 and year 2 offered a broad coverage of the biomedical science disciplines within which students had little choice. In Year 3 by contrast students were able to choose from a very wide range of modules. The students referred to the programme as "a course of two halves" but did not identify any particular problems with the structure and felt prepared to make their final year choices. The students did agree that some choice in the early years would have been desirable.

STAFF MEETING

Resource issues

15) The panel understood that some of the proposed changes to the programme (including the decoupling of MBBS and Biomedical Science teaching, the planned growth in students numbers and the introduction of pathways) would have resource implications. The team was asked how these implications had been considered.

16) In response the team explained that the increase in student numbers was not linked to the revalidation of the programme. The programme was planned to grow (to 855 students across all years of the BSc and MSci by 2019-20) in any case and, under SGUL's arrangements for financial planning, the growth in numbers would be accompanied by investments in staff.

17) The business case setting out the proposal to revalidate the BSc and MSci had been approved by SGUL's senior management committee (SPARC). The business case set out the plans to decouple teaching and made it clear that some lectures would have to be delivered separately to MBBS and Biomedical Science students. The overall contact time for the Biomedical Science course had been reduced to limit that amount of teaching to be delivered twice. At this stage it was likely that 100 lectures would need to be delivered separately to biomedical science and MBBS students. Discussions with academic staff were at an early stage regarding these lectures; if it was not practical for a lecture to be delivered on two occasions in person, e-learning alternatives would be developed. In approving the business case, SPARC had agreed to meet any additional costs that might arise from delivering lectures twice.

18) The team confirmed that it would be possible to timetable any additional lectures. In providing this assurance, the team explained that the usage of lecture theatres had been analysed and

there was sufficient spare lecture theatre capacity to schedule 100 additional lectures. On the basis of current availability, it would be difficult to deliver a student-friendly timetable for biomedical science students because available lecture theatre slots were distributed unevenly through the week. SGUL's Dean for Learning and Teaching was leading a project aimed at ensuring parity between programmes in the allocation of teaching accommodation.

19) The introduction of new pathways did not represent a significant additional cost because, with exception of the clinical sciences pathway, the pathways were based on the current portfolio of level 6 modules. The modules had been grouped to provide coherence and clarity and this was reflected in the array of new award titles. It was hoped that the pathway structure would be attractive to applicants. The intercalated degree for medical students already included named awards.

20) The minimum intake for a module to run was usually 20 although modules could run with as few as 10 students. For example a module running for the first time might run with small numbers until the module was established. Some of the clinically-focussed modules had a maximum intake.

Year 3 pathway and modules - student choice

21) The panel discussed with the team which factors had conventionally influenced student choice in the selection of modules. In response the team explained that most students chose modules because they enjoyed them or because they were academically strong in those areas. Some students might also select modules and opt for a project because they had a particular career in mind.

22) Many students aspired to a career in medicine at SGUL or elsewhere. However, a route to facilitate the transfer of students from biomedical science to medicine was not currently available. The clinical science pathway which included core modules in clinical and communications skills, anatomy and medical law and ethics, had been developed by the team to support students who wished to apply for medicine. The award title conferred on students who successfully completed the clinical sciences pathway (biomedical science with clinical sciences) reflected the focus on subjects that prepared students for the study of medicine. In addition to the clinical science pathway, nine other named pathways were available within the new BSc/MSci programme.

23) In terms of pathways linked to named awards, the panel noted that the new programme was more complex than the current programme. The choice available to students was extensive and, for the panel, it was important for students to be equipped to make informed choices about the option and pathway choices available to them. Specifically, the panel noted that some pathways may be intended to align with particular biomedical science careers and, if this was the case, the career relevance of the pathways should be signposted to students throughout the course. This was particularly important for the pathways, such as global health, which are not directly linked to core biomedical science disciplines.

24) The panel noted that the Personal Academic Skills modules in years 1 and 2 included sessions on careers and on module choices. These sessions could perhaps be reviewed and enhanced in the light of the new programme structure. An additional level 6 Personal Academic Skills module might also be a useful vehicle for supplementing careers advice, information and guidance.

Year 3 pathways – introduction of named awards

25) The panel understood that the rationale for introducing the new award titles was to attract additional applicants. The advice from SGUL's marketing team indicated that the use of multiple award titles was now commonplace across the sector and the opportunity for to follow a pathway of interest to them was particularly attractive to potential students.

26) The panel had a number of observations about the introduction of ten pathways leading to named awards. At the operational and regulatory level, the addition of so many pathways adds a layer of complexity for students and for the staff who advise them about the nature and purpose of the pathways. In addition (and as noted earlier), not all of the pathways are linked to core biomedical science disciplines and this perhaps detracts from the central purpose of the programme which is to offer a programme that meets the academic and professional requirements of the relevant QAA benchmark statement. The introduction of the pathways also reduces the visibility of the core biomedical science disciplines at level 6 and reinforces the perception, expressed by some of the current students, of the disconnect between levels 5 and 6. For these reasons, the panel suggested that the team might reduce the number of pathways available within the course.

Projects

27) The panel noted that all pathways included a project with two exceptions. The clinical sciences pathway and the BSc (Hons) Science of Biomedicine (the exit qualification available to MSci students who did not wish to continue from level 6 to 7) did not include a project. The Frameworks for Higher Education Qualifications published by QAA did not explicitly require all honours degree graduates to have completed a research project. Similarly the clinical science pathway and the Science of Biomedicine exit qualification were not intended to lead to IBMS accreditation and so the absence of a project was not problematic for accreditation reasons.

28) The panel understood why these two awards did not include projects. However the panel felt that students who graduated without having had the opportunity to undertake a project might be disadvantaged in the future careers. The panel therefore recommended that the team might investigate the feasibility of including projects in all level 6 awards.

29) From the discussion of projects, the following additional points are noted:
    a) The reassurance from the team that it had the capacity to offer projects to all students;
    b) The availability of different types of projects for students who did not wish to undertake a laboratory-based project;
    c) The intention to implement a centrally-managed project allocation process to ensure equity and transparency in the allocation process.

Teaching and learning strategies

30) The panel explored with the team the way in which contact times for modules were allocated and used. As an example, the panel discussed the level 5 Clinical Pathology Sciences module which had a credit rating of 50 credits. The module covered the principal pathology disciplines including cellular pathology, clinical biochemistry, clinical genetics, haematology, immunology and medical microbiology. Of the 500 hours of study time for the module, 383 hours were allocated for self-directed study. The panel queried whether the emphasis on self-direction would enable all students to develop the knowledge and skills to, for example, carry out laboratory investigations in each of the pathology disciplines. In response, the team explained

that the non-contact hours included a significant component of directed self-learning. Students are given explicit tasks to carry out by tutors and the students decide how and when to complete these tasks. Group feedback sessions allow students to review whether learning outcomes for the tasks have been achieved.

Review of the content of the level 6 modules

31) The panel understood that the impetus for revalidation process had been to decouple BSc/MSci Biomedical Science and MBBS teaching. As the MBBS course had moved towards an interdisciplinary teaching approach, the existence of traditional scientific disciplines became invisible to the students and the current MBBS module titles have no clear relevance to biomedical science. Key scientific disciplines are distributed across years 1 and 2 and are taught in individual lectures which are not clearly linked to each other. The revalidation, which has focussed on years 1 and 2, had been intended to address some of these issues.

32) The year 3 (level 6) modules have not been subject to review in the same way. Many of these modules had been developed for intercalating medical students and, to greater or lesser extent, had a clinical focus. The panel suggested therefore that the team consider ways of emphasising the relevance of the level 6 modules to biomedical science students. This might, for example, be achieved by inviting biomedical scientists to contribute to the teaching of the level 6 modules.

Quality issues

33) The panel noted that the process of decoupling biomedical science and MBBS teaching would result in the need for some lectures to be delivered separately to the two cohorts of students. At this stage, the team was in discussion with colleagues to determine how the lecture content would be delivered although it was expected that some lectures would be delivered twice by the same lecturer. Others lectures might delivered to one cohort of students (MBBS or biomedical science) with the second cohort having access to a recording of the lecture. For the panel, there were quality implications to either approach. The panel therefore suggested that team develops processes to assure the quality of the lectures that are delivered separately to medical and biomedical science students to ensure that the content of lectures is relevant to and meets the needs of both groups of students.

Placement opportunities

34) The team explained that the opportunities for students to gain practical experience of working in laboratories included the summer placements in research laboratories and shadowing biomedical scientists in the trust. Students were also encouraged to register as bank biomedical scientists. The team had also concluded its first Erasmus agreements to enable a small number of students to carry out a project abroad. The team recognised that students valued opportunities to gain practical experience but at present opportunities were limited. A newly appointed member of staff had had experience of facilitating industrial placements and the team aimed to capitalise on this experience by offering opportunities to a wider range of students. The panel supported the team's intentions in this area.

Personal and Professional Development

35) NSS scores in the Personal Development question set had dropped in 2016 to 69% from 74% in 2015. The Personal and Academic Skills modules had in part been developed to make the way in which the programme sought to develop personal skills more explicit to students. Although the

content of the modules was based on sessions that had always been delivered, it was hoped that the linkage to modules would emphasise the way in which students were supported in their personal development.

36) The team was aware that not all students had understood the purpose of the portfolio as a definitive ongoing record of their skills development, personal achievements and reflection. The e-portfolio, to be introduced in 2017, would be more relevant to students and easier for them to use.

37) The panel commented that students had indicated that a portfolio contents page might have been useful to them. Students might also find it helpful to refer to exemplars as they maintained their own personal portfolio. However the panel concluded that, unless it was credit-rated, some students might neglect the task of maintain a comprehensive and up-to-date portfolio.

DB/October 2016

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Annex A: documents

Revalidation document
Appendices to the revalidation document:

- Self-Evaluation Document
- BSc Programme specification
- MSci Programme specification
- Module directory
- Schemes of Assessment
- Indicative year overviews
- Mapping documents
- Annual Monitoring Reports (3 years)
- External Examiner Reports
- BSc Programme Regulations
- MSci Programme Regulations
- SGUL General Regulations for Students and Programmes of Study
- Draft student handbook
- Draft research project handbook (MSci and BSc)
- Lecturers' CVs

Annex B Biomedical Science Course Team for the revalidation

Dr Fran Gibson	Course Director Biomedical Science
Dr Paris Ataliotis	Chief Examiner Year 3 Biomedical Science & iBSc & Careers Tutor Biomedical Science
Dr Kate Everett	Admissions Tutor
Fiona Menzies	Assistant Registrar (science programmes)
Dr Francesc Miralles Arenas	Chief Examiner Year 2
Dr Robert Nagaj	Module Lead 'Clinical, Communication & Professional Skills in Healthcare'
Dr Axel Nohturfft	Year 2 Lead
Karolina Ossowska	Science Programmes Co-ordinator
Dr Tim Rutherford	Year 1 Lead
Dr Ferran Valderrama	Chief Examiner Y1

Response to the condition, recommendations and feedback of the BSc Biomedical Science re-validation panel (29 September 2016)

Condition 1

The team should put in place structures and processes that will ensure that all students are supported to make informed choices when selecting the modules and pathways (paragraph 26 and 27).

The overarching structure of the Biomedical Science BSc degree course remains unchanged, with compulsory modules throughout Years 1 and 2 and all student-selected modules in Year 3. As such, both institutional and student-body memory (the latter conveyed by peer-group communication and the "mums and dads" scheme) will ensure familiarity with this concept. As mentioned by students on the re-validation panel, this is a process with which students have previously had no major problems and for which they feel prepared.

The course team feel that there is a simpler structure to the Biomedical Science courses and there are only three pathways. We will work to communicate these clearly to staff and the student body. It may appear counter-intuitive, but the delineation of three, distinct pathways from common Years 1 and 2 will cause students to ask questions at a much earlier stage and to become engaged in understanding the different benefits and opportunities offered by these pathways.

Biomedical Science BSc Pathway

The addition of degree award titles is intended to reflect student choice of final year modules rather than to direct these choices. This process is already in place for Intercalated BSc students and Biomedical Science students have often expressed a desire for similar titles. While this does impose an additional organisational task on the course team, the process is well established and not especially burdensome.

The degree titles will be more informative for potential employers and educational establishments. They will also serve to focus the attention of students as they make their module choices. Students are already given some guidance on the pros and cons of choosing disparate or related Year 3 modules from an educational standpoint, but this will in future include an emphasis on the potential consequences for careers choices and further study.

Although not all titles align with traditional biomedical science careers, the vast majority of them are directly relevant. Non-science modules are extremely popular with Biomedical Science students. These choices also have value in broadening students' outlook into the wider applications of biomedical science and may be useful for students considering careers in public health, science policy or communication, for example. Many of the Global Health modules, while not obviously aligning to biomedical science disciplines, actually contain significant content that is relevant to infectious and non-infectious disease, diagnosis and investigation. We have to recognise also that many of our students do not pursue a career as a Biomedical Scientist and we attempt to cater for these different needs.

BSc (Hons) Clinical Bioscience Pathway

We have now differentiated the clinical science pathway as a distinct degree of BSc (Hons) Clinical Bioscience. We will not seek IBMS accreditation for this degree title. The Clinical Bioscience pathway provides a clear focus towards a clinical career. For many students this is likely to be training towards a degree in medicine, but there are alternative careers that students on this pathway could take, including the Physician Associate PGDip. For the past several years, 25-30% of our graduates have reported (through DHLE) that they are on an MBBS degree within 6 months of graduation. The progression points for entry to this pathway and the additional, clinically orientated training that students will receive, should make them more competitive for MBBS degree courses. While our current students value IBMS accreditation of the BSc (Hons) Biomedical Science degree, it will be made clear from the outset to the new cohort of students that the Clinical Bioscience

degree is not IBMS accredited. We will provide clear guidance about the potential benefits of IBMS accreditation and why it is highly unlikely to confer additional benefits for students on this pathway.

The course team have explored the possibility of including a compulsory research project as part of this pathway. We accept the potential value of incorporating a research project element into this BSc and have concluded that the only way to achieve this is to provide a structured, 15-credit research project skills module and to remove the standalone module in Medical Ethics & Law. The 'Research Project Skills' module outline is attached (page 7). Students on this pathway will be able to choose 45 credits of available taught modules. This pathway will be compulsory only for those students who have been accepted into the MBBS4 Clinical Transfer route and. Students interested in a clinical career, but who may wish to pursue a more extensive research project in Year 3, are free to opt for the Biomedical Science pathway and would still be able to apply for postgraduate and undergraduate medicine courses, just as they do now.

Biomedical Science MSci Pathway

The MSci pathway is already clearly signposted to students as providing extensive training towards a research-orientated career. Undergraduates enter the MSci or BSc programmes through UCAS, although the programme allows the flexibility to change at the end of Year 2.

Action Points

- Incorporation of pathway-specific information into course handbooks and all scheduled careers sessions in Years 1 and 2, along with discussion of potential career implications of pathway/module choices.
- Additional session to be timetabled for Year 2, immediately prior to pathway/module choice to provide advice and opportunities for questions. Involvement of alumni and/or Year 3 students, if possible.
- Provision of more detailed information and training for personal tutors, so that they can discuss pathway/module choices with Year 2 students. Scheduling of an additional personal tutor meeting prior to pathway/module choice near the beginning of Semester 4.
- Development of a Biomed Careers booklet by the course team and the Careers Consultant, to include an overview of careers options and additional information. Engagement with alumni to provide case studies of traditional and non-traditional opportunities for graduates.

Recommendation 1

The panel recommended that the team should explore the feasibility of making the project a requirement for all pathways and awards (paragraph 31).

The course team is supportive of the recommendation to make the project a requirement for all pathways and awards. Projects enable students to develop laboratory and/or field work skills, knowledge of instrumentation and experimental methods, and insights into research methodology. The projects are also designed to increase the student's ability to obtain, analyse and discuss scientific data in light of current scientific thought.

Students undertaking the Biomedical Science pathway will continue to take a compulsory 45 credit research project in Year 3, in a subject area of their choice.

We have accepted the recommendation of the validation panel and students undertaking the Clinical Bioscience pathway will take a compulsory research project skills module in Semester 5 of Year 3. However, we feel that students will still want meaningful choice of taught modules in the final year and cannot therefore accommodate more than a 15-credit project module. Unfortunately, this project will not be acceptable for IBMS accreditation, but as outlined above for Condition 1, we do not believe that this will disadvantage students on this pathway

Students undertaking the MSci Biomedical Science pathway will undertake a compulsory 105 credit research project in a subject area of their choice in Year 4.

It has not been possible to incorporate a research project into Year 3 of the MSci pathway and the exit award of Science of Biomedicine will not have a research component, apart from the practical sessions completed in Years 1 and 2 and the research-orientated modules in Year 3. This parallels the situation for earlier exit awards from the BSc. Students will need to be realistic about their choice of pathway at the end of Year 2 and will be constrained by progression criteria. Based on the performance of previous cohorts, it seems likely that this exit award will be very rarely utilised.

Recommendation 2

The panel recommended that the team review and, if appropriate, reduce the range of award titles available within the programme (paragraph 29).

BSc (Hons) Science of Biomedicine

The BSc (Hons) Science of Biomedicine award acts as an exit qualification from the MSci Biomedical Science programme, available for students who do not wish to continue from level 6 to 7. With current resourcing and the intention to expand the BSc programme, the course team does not feel it is feasible to offer a Level 6 project to MSci students in addition to the extended 105 credit project taken at Level 7 in Year 4. It is anticipated that very few students would seek to exit the programme after successful completion of Level 6, but for those who do, an exit award title that is clearly distinguishable from the IBMS-accredited BSc programme is a necessity.

BSc (Hons) Clinical Bioscience

As outlined above, the clinical bioscience pathway provides a clear focus towards a clinical career. While the pathway includes a 15-credit compulsory project skills module, this project does not satisfy IBMS accreditation requirements which stipulate “not less than 20% of the final year credits” should be attributed to the research project. Students following the clinical bioscience pathway will not obtain an IBMS accredited award and therefore an exit award title that is clearly distinguishable from the IBMS-accredited BSc programme is a necessity.

BSc (Hons) Biomedical Science with additional degree titles

The course team has reviewed the range of BSc Biomedical Science award titles to be introduced and is satisfied that these accurately reflect the manner in which diverse Year 3 module options can combine to form cohesive areas of study.

The course team noted that BSc Biomedical Science students have frequently requested the introduction of a range award titles to reflect more specialised study in Year 3; this scheme is already in place for intercalating medical students (sharing modules with the Year 3 Biomedical Science modules). Extending this practice to the Biomedical Science programme is widely supported by students, and the course team is confident that it is a relatively straightforward amendment which should not only help to improve student satisfaction but also enhance the marketability of the programme. The course team do not anticipate that the introduction of pathways and additional degree titles will negatively impact the student module selection process, but will help focus student attention on the implications of Year 3 module choices for their future careers. However, these issues will be carefully monitored and reviewed in forthcoming years.

Recommendation 3

The team was encouraged to review the content and delivery of the year 3 (level 6) modules to emphasise the way in which these modules develop knowledge and skills relevant to biomedical science. This emphasis might, for example, be achieved by involving biomedical scientists in the delivery of the clinically-focussed modules (paragraphs 34 and 35).

In response to the recommendation of the validation panel Year 3 module outlines have been updated to highlight key topic areas relevant to Biomedical Science, correlating with the IBMS mapping outline included within the validation documentation. In addition, Year 3 module leaders will be encouraged to consider ways in which they might involve Biomedical Scientists in future module delivery.

The course team will continue to systematically review Year 3 provision; module leaders will be required to regularly review and update module outlines, and will be prompted to highlight the ways in which their modules develop knowledge and skills relevant to Biomedical Science.

At the module selection stage in Year 2, the course team will make every effort to signpost those modules which may be of particular interest and relevance to those considering a career as a Biomedical Scientist. However, as indicated previously, the team also wish students to be aware of opportunities to broaden their outlook and consider the wider applications of biomedical science; the team feels the programme's diverse module provision is of particular value to those students who do not wish to pursue a career in healthcare or scientific research and are perhaps considering careers in science policy, education or communication.

Recommendation 4

The team was encouraged to develop processes to assure the quality of the lectures that are delivered separately to medical and biomedical science students. Processes of this kind will ensure that the content of lectures is relevant to and meets the needs of both groups of students (paragraph 36).

Delivery of high quality teaching tailored to the needs of Biomedical Science students will be a priority for the course team as the new curriculum is introduced. Each module leader will take responsibility for identifying and engaging suitable staff to deliver module content, briefing lecturers on module-specific learning aims and objectives. Where difficulties are encountered in scheduling a course-specific live lecture (owing to lecturer availability of venue availability) the team will seek to utilise relevant technologies to ensure curriculum delivery; this may include audio-recorded powerpoints, live streaming, or provision of video recorded lectures.

In addition to existing mechanisms to gather and review student cohort feedback which is formally considered by the course committee, the course team will also seek to implement a variety of more informal and immediate feedback activities, for example lecture-specific on-line polls/feedback and informal feedback meetings with key course leads for student representatives. Monitoring quality of course delivery and student satisfaction, and responding to significant concerns, queries or confusion promptly will be a key priority for the course team.

Recommendation 5

The panel recommended that the team investigate flexibility with SGUL regulations and quality assurance processes to reduce the burden on staff of carrying out double-marking. (NB: General Regulation 11.7 states that written assessments, whether conducted under supervised or unsupervised conditions, shall be marked in detail by one Internal Examiner or Assessor, with at least one other Internal Examiner or Assessor having an overview of the work submitted for assessment. The precise rules for moderation shall be detailed in the Scheme of Assessment for the programme in question)

The Schemes of Assessment have been amended to reflect the contents of the General Regulations and with regard to the Quality Manual, specifically incorporating the wording from General Regulation 11.7 shown above. Exception is made for Research Project dissertations and viva voce examinations in Year 3 of the Biomedical Science BSc where work will be independently double-marked. Additional guidance will be issued

to module organisers, responsible examiners and external examiners regarding moderation of exam marks and maintaining QA standards.

Recommendation 6

The panel recommended that the team explore ways of facilitating extracurricular opportunities for students to gain practical experience of working in laboratories at St George's, in the wider NHS and in industry. Opportunities might include short summer placements, shadowing and work placements in industry (paragraph 37).

Students have the opportunity for summer clinical placements in the hospital, work via the Staff Bank in the hospital diagnostic labs, Summer Vacation Studentships in the research labs, and from the 2016-17 year, Erasmus opportunities for Year 4 MSci students. We do not currently provide industrial placements. However, we have a new member of staff on the team, Dr Alexis Bailey, who has relevant experience and useful contacts, and together with the Erasmus Academic Lead, Dr Ferran Valderrama, we are taking this forward. We are developing a 'Professional Training Year' between Years 2 and 3, including opportunities in industry, the NHS, and Erasmus placements in industry and academia. In addition, we will explore the potential of Biomedical Science alumni contributing to careers sessions.

Technical conditions

a) **The definitive document should include the programme learning outcomes for all Intermediate awards.**

Please see attached documents (pages 25-28) providing learning outcomes for:

Undergraduate Certificate in Biomedical Science
Undergraduate Diploma in Biomedical Science
BSc (Hons) Science of Biomedicine
BSc (Hons) Clinical Bioscience

b) **Year 1 and 2 Schemes of assessment should be presented for UMBEC approval.**

The Schemes of Assessment for 2017-18 will be presented to UMBEC for formal approval in late 2016 / early 2017. Minor amendments to the Schemes include a correction to re-sit requirements (i.e. students will be offered the opportunity to re-sit/re-submit failed assessment components, not re-sit/repeat the whole year) and clarification of progression criteria. Specifically, it is a requirement for all summative elements of assessment to be passed in Year 1 and 2 modules, i.e. Written Examinations, Laboratory Practical (In-Course) Assessments and Practical Assessments (Anatomy OSPE). The amended schemes also indicate the timing for Semester 1 & 3 re-sit examinations and clarify the capping policy for re-sits/re-submissions.

The amended Year 1 and 2 Schemes of Assessment, and new schemes for Year 3 BSc Biomedical Science and BSc Clinical Bioscience, are attached (pages 10 - 24).

c) **The Senior External Examiner should be appointed from a department that offers an IBMS - accredited biomedical science programme.**

The current Senior External Examiner will complete her term of appointment in 2016-17. A Senior External Examiner from a department that offers an IBMS-accredited programme will be sought for 2017-18 onwards. At present, seven External Examiners appointed to the Biomedical Science Boards of Examiners are from departments that offer an IBMS-accredited Biomedical Science programme.

Amendments in response to feedback from IBMS representative

- Updated information relating to IBMS Licentiate membership and student e-membership options, also HPC corrected to HCPC (Student Handbook, Appendix K)

- Educational aims within the Programme Specifications have been amended in order to indicate that the programme meets the academic requirements for HCPC registration as a biomedical scientist on the basis of the clinical laboratory investigations.

- The Clinical Pathology Specialities module outline (Year 2) has been enhanced in response to feedback comments, and attached (page 29):

    i) Rewritten module learning aims which relate to the entire module rather than each specialty.
    ii) Inclusion of three further learning outcomes relating to the entire module; these are in addition to existing learning outcomes for each specialty.
    iii) Inclusion of aims and learning outcomes specifically relating to the practical skills of the module
    iv) Improved articulation of 'laboratory investigation' within indicative content for each specialty section
    v) Amended clinical speciality headers within the module outline in line with the QAA Subject Benchmark Statement for Biomedical Sciences 2015 and the IBMS Requirements 2015 (for example, 'Immunology' amended to 'Clinical Immunology', though 'Haematology' remains as is, in line with the above statements).
    vi) Amendment to assessment requirements, highlighting importance of practical skills within the module: all assessment components are compulsory and all assessment categories within the module must be passed in order for a student to achieve an overall pass for the module.

- Amendments to Year 3 module outlines to highlight coverage of key disciplines (see detailed response to recommendation 3 above).

<u>Additional amendments and corrections to course documentation</u>

The definitive course document and associated appendices reflect the changes outlined above. Additional amendments and corrections include:

- Correction to chair of UMBEC and committee reporting structure (section 2.11.3)
- Inclusion of brief explanation of QAEC and its role (section 2.11.3)
- Correction to remove duplicated paragraph (end of section 6.6)
- Correction to spelling error in table header (section 2.2, table 9)
- Revised diagram to better demonstrate required academic criteria to progress between years/pathways (section 4.3, figure 5)
- Updated programme specifications to reflect all amendments detailed above (Appendix B)
- Amended contact hours for Year 3 modules MHE5001 and PHAR1402 (Appendix C)
- Updated module leaders for Physiology 2 module (Appendix C)
- Correction to assessment requirements within all Year 1 and 2 module outlines to indicate that all assessment components are compulsory and all summative assessment categories within the module must be passed in order for a student to achieve an overall pass for the module (with exception of EHC assessment component of PAS modules). (Appendix C)
- Updated programme regulations to reflect all amendments detailed above (Appendix I)