1. **Programme title and designation**

   BSc Oral & Craniofacial Biology

<table>
<thead>
<tr>
<th>Single honours</th>
<th>Joint</th>
<th>Major/minor</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

2. **Final award**

<table>
<thead>
<tr>
<th>Award</th>
<th>Title</th>
<th>Credit value</th>
<th>ECTS equivalent</th>
<th>Any special criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc</td>
<td>Oral &amp; Craniofacial Biology with Basic Medical/Dental/Veterinary Sciences</td>
<td>120</td>
<td>60</td>
<td>N/A</td>
</tr>
</tbody>
</table>

3. **Linked award**

   BDS/ MBBS/ BVet Med

4. **Exit award**

<table>
<thead>
<tr>
<th>Award</th>
<th>Title</th>
<th>Credit value</th>
<th>ECTS equivalent</th>
<th>Any special criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc</td>
<td>Biomedical Science with Basic Medical Sciences</td>
<td>120</td>
<td>60</td>
<td>N/A</td>
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</table>

5. **Attendance**

<table>
<thead>
<tr>
<th>Mode of attendance</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Distance learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   | Minimum length of programme | 12 months |
   | Maximum length of programme | 2 years |

7. **Awarding institution/body**

   University of London

8. **Teaching institution**

   King’s College London

9. **Proposing department**

   Dental Institute/Craniofacial Development

10. **Programme organiser and contact**

    **Dr. Jeremy Green**
    Reader in Developmental Cell Biology
    Department of Craniofacial Development,
    Guy's Tower Wing 27th Floor
    Floor 27 Guy’s Tower; phone: 020 7188 1794;
    e-mail: jeremy.green@kcl.ac.uk

11. **UCAS code (if appropriate)**

    Not applicable

12. **Relevant QAA subject benchmark/ professional and statutory body guidelines**

    Biosciences

13. **Date of production of specification**

    2004/05 (revised and CF compliant for entry September 2010)

14. **Date of programme review**

    2016/17

16. **Educational aims of the programme**

    The programme aims at enabling students to understand Oral and Craniofacial Biology at the interface of academic and applied biomedical, medical, dental and veterinarian research. For
this, the course will deliver the state of current knowledge of the field, teach the practical
skills for laboratory experimentation and develop the transferable skills crucial for a career in
this and related fields. In more detail, the programme will:
(a) provide students with knowledge and understanding of key molecular, cellular and
anatomical processes in oral biology, craniofacial development, remodelling, evolution
and disease
(b) provide students with an integrated view of the mouth, head, face and neck as a system
(c) equip students with skills to understand and evaluate biomedical research
(d) familiarise students with laboratory routine and safe laboratory practices
(e) enable students to independently carry out standard laboratory procedures and introduce
students to cutting-edge experimental approaches
(f) allow students to recognise the interdependence of dental and biomedical sciences, health,
economical prosperity and society
(g) develop critical and independent thinking, problem-solving strategies, time-management,
self-organisation and responsibility.

17. Educational objectives of the programme/programme outcomes

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

Knowledge and understanding

The programme provides a knowledge and understanding of the following:

1) Biomedical Sciences
a) Molecular Biology:
   - Components and function of regulatory networks
   - Applied Molecular Biology for experimental designs
   - Laboratory health and safety, legal framework for laboratory experimentation
b) Cell Biology
   - Cell cycle, cell differentiation, stem cell biology and therapeutic application
c) Developmental Biology and Evolution
   - Concepts and terminology
   - Development of the body plan
   - Relationship of ontogeny and phylogeny
d) Craniofacial Sciences
   - Developmental anatomy of head and face
   - Fate and developmental competence of craniofacial cells and tissues

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

The students will have an integrated programme of lectures, tutorials, seminars and laboratory attachments. They will be revisiting information provided in phases I and II of their studies. However, most of the information will be novel, extracted from ongoing work in the Department and in the field of Oral and Craniofacial Biology.

Assessment:
Knowledge assessment will be performed at the end of the year through:
- two unseen written papers
- three oral examinations
- three essays
  a) thesis-style dissertation
  b) proposal of a research project
  c) newspaper-style article
- Regulation of craniofacial development
- Evolution of the head
- Relationship of craniofacial development and disease
- Interdependence of craniofacial biological processes; head, face and neck as a system
e) Oral physiology, immune function and microbiology
- Processes and pathologies of mastication and salivation
- Nature and mechanisms of orofacial pain
- Breadth and nature of oral infections and the oral ecosystem
e) Mathematics, informatics and statistics
- Applied mathematics for laboratory problems
- Quantification of experimental data
- Sequence analysis

2) Significance of Oral and Craniofacial Biology
a) Dental/medical and socioeconomic importance of Oral and Craniofacial Biology, relationship of knowledge and therapy
b) Dissemination of scientific results
c) Obtaining funding.

Skills and other attributes

**Intellectual skills:**

Students will be enabled to:

- Understand the interdependence of biological processes and the complexity of biological systems
- Develop insight into and critically analyse scientific literature and research
- Recognise, define, prioritise and present to peers problems in Oral and Craniofacial Biology and Disease
- Recognise the power and limitations of laboratory methodology and research programmes
- Define, critically assess and execute the phases of an experiment from

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

- Students will be trained in the language and thinking of science through a series of lectures and tutorials
- They will actively participate in the ongoing research of the Department and will plan and carry out their own research projects. Moreover, they will practise using their intellectual skills by designing a new project in the form of a grant proposal
- Students will undertake presentations of relevant subjects to
Planning to data collection, documentation and presentation
- Understand the intellectual heritage which has led to asking today's scientific questions
- Understand science as a process – How do we know what we know?

**Assessment:**

End-of-year summational examinations will assess critical analysis of literature in relation to the taught elements of the course units. The seminars presentations, the research project dissertation and the grant proposal will assess critical analysis of scientific concepts, of research and of experimental strategies.

**Practical skills:**

Students will be enabled to:

- Analyse and present scientific data and research
- Design research projects with practical considerations of feasibility, experimental methodology, interpretation and health & safety
- Confidently use the standard and some specialised, novel methods in molecular, cellular and developmental biology and to carry out an extensive research project
- Apply mathematics/statistics to numerical and quantification problems.

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

- Tutors will introduce students to topics, laboratory methods and good laboratory practice.
- In a series of lectures and tutorials, tutors will critically analyse published and proposed work and will facilitate presentations on model organisms and project design
- Students will practise key laboratory procedures under supervision
- Students will be assigned to laboratory-based research projects where they will apply and further develop practical techniques in a variety of methodologies depending upon the project, for example embryology, functional genomics, proteomics, in-vitro cell and tissue cultures, microscopy and morphometry.

**Assessment:**

- In-course assessment of laboratory experimentation/laboratory skills as part of the project module
- An 8,000 to 10,000-word publication-style dissertation based upon the research project and a review of the topic.
- One assessed presentation on model organisms
- One assessed presentation and a 3,000-5,000-word report on...
Generic/transferable skills:

- Retrieve, manage and manipulate information by all means, including electronically
- Interpret information and critically evaluate the significance of information in a wider context
- Assess complex problems
- Apply mathematical skills and statistical concepts and critically interpret data
- Present information clearly in written, electronic and oral forms, and communicate ideas and arguments effectively
- Apply the principles of scientific research to a biomedical problem
- Take responsibility for personal and professional development, in particular work up to deadlines, time management, self-motivation and self-organisation, problem-solving strategies
- Deal with unfamiliar laboratory environments and staff relationships and take an active role in this
- Work effectively within a professional team

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

- Students are required to search various resources and databases for information and select and display information in small group presentations
- Students will utilise a variety of data processing and editing programmes during the laboratory project and the assembly of the various essays
- Principles and practicalities of research are covered in lectures, small group presentations and through the laboratory project
- Students will practise various forms of scientific communication through oral and written presentations
- Students will make choices in learning by developing interests in specific research areas; they then will have to carry the project forward in a self-motivated fashion
- Students will take over responsibilities as part of their research team; teamwork is further developed in seminar subgroups and research projects
- Students will practise mathematical/statistical applications as part of the laboratory routine and the quantification of data.

Assessment:
These skills are included in assessment of their presentations, essays and their laboratory attachments.

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

The students will develop specific knowledge and skills defined in the benchmark statements for Biomedical Science i.e. an understanding of scientific investigation of human health and disease in relation to Oral and Craniofacial Development and Biology. They should also develop research skills and build upon key transferable skills learned in the Biomedical Sciences/ BDS/ MBBS/ BVetMed courses. The BSc uses relevant teaching, learning and assessment methodologies as specified in the benchmark statements.
19. Programme structure and award requirements

(where relevant the information should also differentiate the particular requirements of pathways within a programme or linked/exit awards)

(a) numbers of compulsory and optional units to be taken in each year of the programme

Project in Oral & Craniofacial Biology (6BBY0394 – 45 credits) is Core
Taught Courses (Craniofacial Sciences 6BBYC302) and Oral Biology (6BBY0393) are Core
Experimental Approaches and Project Design in Craniofacial Sciences (6BBYC303) is Optional

(b) range of credit levels permitted within the programme
Level 6

(c) maximum number of credits permitted at the lowest level
120 credits at level 6

(d) minimum number of credits required at the highest level
120 credits at level 6

(e) progression and award requirements (if different from the standard)
No progression: students return to their previous programme of study i.e MBBS, BVet, BDS

(f) maximum number of credits permitted with a condoned fail (core modules excluded)
30

(g) are students permitted to take a substitute module, as per regulation A3.20.7?
No

(h) other relevant information to explain the programme structure.

Maximum of two attempts at assessment at the discretion of the School Board of Examiners.

Students who have achieved 120 credits, including up to 30 credits of condoned fails, but who have failed a core module or otherwise failed to meet the requirements for the named award, may be awarded a BSc in Biomedical & Health Science with Basic Medical/Dental/Veterinary Sciences.
Please complete the following table(s) and, if appropriate to include joint, major/minor or other variations

**Title** = title of the course unit/module plus its value for course unit degrees; for other programmes give the percentage amount it contributes to the overall programme

**Year** = year of the programme in which the unit/module is taken

**Status** = please indicate whether the unit/module is introductory, compulsory or optional for each type of programme. For postgraduate programmes use the “single honours” column

**Assessment** = please indicate in broad terms the assessment for the unit/module eg 70% written examinations, 30% coursework

**Progression** = please indicate whether the unit/module is required to be passed for progression and/or for completion of the award and to which type of programme this applies

(Note: the availability of optional course units may vary slightly from year to year; the following are the units available at the commencement of the programme)

<table>
<thead>
<tr>
<th>Programme structure</th>
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</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td>6BBY0394 – Oral and Craniofacial Biology Project</td>
</tr>
<tr>
<td>6BBYC302 – Craniofacial Sciences</td>
</tr>
<tr>
<td>6BBYC305 – Experimental Approaches and Project Design in Craniofacial Sciences</td>
</tr>
<tr>
<td>6BBY0393 - Oral Biology</td>
</tr>
<tr>
<td>Optional module from the School of Biomedical &amp; Health Sciences</td>
</tr>
</tbody>
</table>

ASQ Approved: 20 January 2010
PAF modified for 2012/13 by QAS: 21st December 2011
PAF finalised for 2013/14: 28 October 2013
PAF finalised for 2014/15: 31 October 2014
19. Marking criteria

All modules will be marked in accordance with the School’s marking criteria where such exist, or else in accordance with the College’s generic marking criteria.

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

Admissions
All students in receipt of an offer receive an information booklet on the support services offered by the College.

All students receiving offers who have indicated they have a disability in their application receive a letter from the School Disability Adviser with her contact details and offering the applicant the opportunity to discuss their requirements.

Publicity and programme handbook
These clearly communicate the key skills that will be required during the programme, the content of each module, the intended teaching methods to be used and the module’s status (core/compulsory).

Teaching methods
Teaching is predominantly seminar based. Handouts in alternative formats can be made available to students with a legitimate reason for not attending sessions. Key readings for each seminar are provided to students one week in advance of each seminar. Lecture notes are not routinely available in advance in electronic formats but this can be arranged.

Assessment
Module outlines specify the assessment methods that will be used. Advice would be been taken from the Equality and Diversity Department to ensure assessment methods do not unfairly discriminate against students with disabilities. The College’s Special Examination Arrangements Committee (SEAC) considers requests for adjustments to assessment to take account of learning and/or physical disabilities.

Feedback
Feedback on the programme is regularly collected from students. The information collected is used towards the on-going development and improvement of the programme.

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