Programme Specification – 2016/17

1. Awarding body
   University of Surrey

2. Teaching institution (if different)
   N/A

3. Final award and programme/pathway title
   BSc (Hons) Biological Sciences

4. Subsidiary award(s) and title(s)

<table>
<thead>
<tr>
<th>Award</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc (Ord)</td>
<td>Biosciences</td>
</tr>
<tr>
<td>Dip HE</td>
<td>Biosciences</td>
</tr>
<tr>
<td>Cert HE</td>
<td>Biosciences</td>
</tr>
</tbody>
</table>

5. FHEQ Level
   4, 5 & 6

6. Credits and ECTS credits
   360 UK credits = 180 ECTS credits

7. Name of Professional, Statutory or Regulatory Body (PSRB)
   N/A

8. Mode of study and route code

<table>
<thead>
<tr>
<th>Mode of study</th>
<th>Route code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>Y</td>
</tr>
<tr>
<td>Full-time with PTY</td>
<td>Y</td>
</tr>
<tr>
<td>Part-time</td>
<td>N</td>
</tr>
<tr>
<td>Distance learning</td>
<td>N</td>
</tr>
<tr>
<td>Short course</td>
<td>N</td>
</tr>
</tbody>
</table>

9. JACs code

10. QAA Subject benchmark statement (if applicable)
    QAA Biosciences Benchmark Statement for Biosciences

11. Other internal and / or external reference points
    N/A

12. Faculty and Department/School
    Faculty of Health and Medical Sciences, Department of Biosciences and Physiology

13. Programme Leader
    Dr Kate Plant

14. Date of production/revision of the specification
    August 2016

15. Educational aims of the programme

   - To provide a high quality education in the various aspects of Biological Sciences for students with diverse interests and career aspirations (including researcher, scientific writer/editor, teacher).
   - To further the students’ knowledge of the fundamental principles of biology and to develop a deeper knowledge in specific aspects of biological sciences, leading in some cases to a specialism.
   - To provide the appropriate environment to encourage the development of the students interest in biological sciences and to help them acquire appropriate intellectual, scientific, technical and key transferable skills to promote self-directed and life-long learning.

16. Programme learning outcomes – the programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas:

   **Knowledge and understanding**

   **BSc (Hons) Biological Sciences**
   1. An understanding of laboratory and field-based investigation and its application to a variety of aspects of Biological Sciences
   2. A good breadth of knowledge in the field of biological sciences in general and a good depth of
knowledge in more specialised fields, particularly at the molecular and organism level

3. Familiarity with the terminology, nomenclature and classification systems used in Biological Sciences
4. Engagement with the essential facts, major concepts, principles and theories associated with the chosen discipline
5. An appreciation of the complexity and diversity of life processes through the study of organisms, their molecular, cellular and physiological processes, their genetics and evolution, and the interrelationships between them and their environment
6. Some understanding of ethical issues and the impact on society of advances in the biosciences

(QAA Benchmark statements 3.2 & 3.3)

Additionally for students engaged on one of the specialisms:
7. An in depth and cutting edge understanding of the chosen specialism: Cancer and Molecular Sciences, Infection and Immunity, Neuroscience, Pharmacology & Toxicology (Drug Science), or Systems Biology

**BSc (Ord) Biosciences**
1. An understanding of the key principles of good laboratory, clinical and field-based investigation and their application to a variety of aspects of Biosciences
2. A good breadth knowledge at the molecular, cellular and organism levels with some degree of specialist knowledge apparent
3. Appropriate use of key terminology, nomenclature and classification systems used in specific fields within the Biosciences
4. Engagement with many of the essential facts, major concepts, principles and theories associated with a chosen discipline within the Biosciences
5. An appreciation of the complexity and diversity of life processes through the study of organisms
6. A basic appreciation of some ethical issues and the impact on society of advances in the Biosciences

(QAA Benchmark statements 3.2 & 3.3)

**Dip HE Biosciences**
1. Ability to recognise and outline the key principles of laboratory, clinical and/or field-based investigation within the Biosciences
2. Broad basic knowledge at the molecular, cellular and organism levels with some degree of specialist knowledge developing
3. Recollection of much of the key terminology, nomenclature and classification systems used in specific fields within the Biosciences
4. Recollection of many of the essential facts, major concepts, principles and theories associated with a chosen discipline within the Biosciences
5. A knowledge of many life processes and a basic appreciation their complexity and diversity

(QAA Benchmark statements 3.2 & 3.3)

**Cert HE Biosciences**
1. Ability to recognise the purpose of laboratory, clinical and/or field-based investigations within the Biosciences
2. Basic factual biological knowledge at the molecular, cellular and organism levels
3. Recognition of some of the key terminology, nomenclature and classification systems used in Biosciences
4. Recognition of some of the essential facts, major concepts, principles and theories associated with a chosen discipline within the Biosciences
5. A knowledge of many life processes
### Intellectual / cognitive skills

**BSc (Hons) Biological Sciences**
1. Evaluate research findings and scientific literature and demonstrate the ability to find and evaluate appropriate sources of material and to critically assess it (3.3).
2. Demonstrate an understanding of research design and planning and the limits of scientific findings (3.5)
3. Recognise that statements should be tested and that evidence is subject to assessment and critical evaluation
4. Think independently, set tasks and solve problems (3.3, 3.5)
5. Recognise the moral and ethical issues of investigations and appreciate the need for ethical standards and professional codes of conduct (3.5)

**BSc (Ord) Biosciences**
1. Synthesise information gathered different sources to address specific scientific questions (3.3).
2. Demonstrate an understanding of the principles of research design and planning (3.5)
3. Recognise the on-going nature of scientific research in defining our modern understanding of biological systems
4. Identify and solve problems using previously developed strategies (3.3, 3.5)
5. Demonstrate an understanding of ethical issues and the impact of advances in the biosciences encompassing an appreciation of the responsibilities of Bioscientists to wider society (3.5)

**Dip HE Biosciences**
1. Apply information gathered from suitable sources to address specific scientific questions (3.3).
2. Recognise the importance of following research procedures accurately and the consequences of failing to do so (3.5)
3. Recognise the place of research in defining new paradigms
4. Employ previously developed strategies to guide problem solving (3.3, 3.5)
5. Demonstrate an appreciation of the wider ethical issues of research and the impact of advances in the Biosciences on wider society and the environment (3.5)

**Cert HE Biosciences**
1. Identify suitable sources of scientific information (3.3).
2. Recognise the importance of following research procedures accurately (3.5)
3. Utilise previously defined scientific procedures to illustrate biological principles
4. Follow well defined schemes to solve problems (3.3, 3.5)
5. Demonstrate a basic appreciation of some of the ethical issues surrounding the Biosciences including the need to carry out biological procedures in a safe and ethical manner (3.5)

### Professional practical skills

**BSc (Hons) Biological Sciences**
1. Demonstrate competence in basic laboratory and field skills relevant to Biological Sciences (3.4, 3.6)
2. Develop advanced practical skills relevant to a particular specialism in the biological sciences (3.4, 3.6)
3. Interpret qualitative and quantitative data (3.4, 3.7)
4. Take responsibility for planning and organisation of work both their own and in a team (3.10)
5. Undertake field and/or laboratory investigations of living systems in a responsible, safe and ethical manner

**BSc (Ord) Biosciences**
1. With minimal instruction demonstrate competence in basic laboratory, clinical and/or field skills relevant to Biosciences (3.4, 3.6)
2. With minimal instruction demonstrate competence in some of the key practical skills relevant to a particular specialism within Biosciences (3.4, 3.6)
3. Accurately report and analyse biological data to draw conclusions (3.5, 3.7)
4. Follow detailed investigative protocols as instructed, and plan the work set out individually or within a team as appropriate (3.10)
5. Undertake laboratory, clinical and/or fieldwork as instructed, in a safe and ethical manner

**Dip HE Biosciences**
1. With appropriate instruction, demonstrate competence in basic laboratory, clinical and/or field skills relevant to Biosciences (3.4, 3.6)
2. With appropriate instruction, demonstrate an ability to perform some key practical skills relevant to a particular specialism within Biosciences (3.4, 3.6)
3. Accurately report and analyse biological data to draw basic conclusions (3.5, 3.7)
4. Follow investigative protocols as instructed and perform the work set out efficiently either individually or within a team (3.10)
5. Undertake laboratory, clinical and/or fieldwork as instructed, in a safe and ethical manner

**Cert HE Biosciences**
1. With detailed instruction, demonstrate some ability to perform basic laboratory, clinical and/or field skills in Biosciences (3.4, 3.6)
2. Clearly and concisely report biological procedures and data and draw some basic conclusions (3.5, 3.7)
3. Follow basic laboratory protocols as instructed (3.10)
4. Undertake laboratory, clinical and/or fieldwork as instructed, in a safe and ethical manner

**Key / transferable skills**

**BSc (Hons) Biological Sciences**
1. Learn independently (3.10)
2. Communicate about their subject appropriately to a variety of audiences using a range of formats and approaches, using appropriate scientific language (3.8)
3. Work effectively and independently on a given project or task (3.10)
4. Work effectively in small groups and teams towards a common goal/outcome (3.9)
5. Apply basic statistical and numerical skills to biological data, to interpret and present data using appropriate software (3.7)
6. Use the internet and other electronic sources critically as a means of communication and a source of information (3.8)

**BSc (Ord) Biosciences**
1. Employ learning and time-management strategies to organise learning effectively (3.10)
2. Communicate biological concepts in a range of formats using appropriate scientific language (3.8)
3. With minimal guidance work effectively on a given project or task (3.10)
4. With minimal guidance work effectively in small groups and teams towards a common goal (3.9)
5. Select and apply the numerical and statistical approaches required to analyse particular biological data (3.7)
6. Use academic literature, the internet and other electronic sources critically as a source of information (3.8)

**Dip HE Biosciences**
1. Identify own strategies for effective learning and develop time-management skills (3.10)
2. Communicate basic biological principles using appropriate scientific language (3.8)
3. With some guidance work effectively on an individual task (3.10)
4. With some guidance work effectively in small groups to achieve a common goal (3.9)
5. Apply basic statistical and numerical skills, with some guidance, to analyse simple biological data (3.7)
6. Use the internet and other electronic resources to identify appropriate sources of scientific information (3.8)

Cert HE Biosciences
1. With support, take responsibility for own time-management and academic efforts (3.10)
2. Communicate basic scientific information (3.8)
3. With guidance work on specific tasks (3.10)
4. With guidance work in small groups on a specific task (3.9)
5. Apply basic statistical and numerical skills, under direction, to analyse simple biological data (3.7)
6. Use the internet and other electronic resources to identify appropriate sources of scientific information (3.8)

17. Programme structure – including the route / pathway / field requirements, levels modules, credits, awards and further information on the mode of study.

All programmes operate on a 15 credit modular structure over two semesters. All taught modules are semester based and are worth 15 credits, which is indicative of 150 hours of learning, comprised of student contact, private study and assessment. Project and dissertation modules can be either 15, 30, 45 or 60 credits.

This programme is studied full-time over three or four academic years. Three years without a Professional Training Year and four years with a Professional Training Year. In order to achieve the principal award of BSc (Hons) a student must complete 360 credits, 120 credits at FHEQ levels 4, 5 and 6 respectively. In order to achieve the principal award with a professional training year students must also complete 120 credits at level P. Students are also eligible to exit the programme with the following subsidiary awards:

- BSc (Ord) – 300 credits with a minimum of 60 credits at FHEQ level 6
- Diploma of Higher Education (Dip HE) – 240 credits with a minimum of 120 credits at FHEQ level 5
- Certificate of Higher Education (Cert HE) – 120 credits at FHEQ level 4

In order for students to progress they must achieve a minimum average of 40% and have completed all 120 credits at FHEQ levels 4 and 5 and level P.

Programme adjustments (if applicable)

Five specialisms are available within the Biological Sciences programme:

- Biological Sciences (Infection and Immunity)  
- Biological Sciences (Cancer and Molecular Sciences)  
- Biological Sciences (Neuroscience)  
- Biological Sciences (Drug Science)  
- Biological Sciences (Systems Biology)  

Modules which are only compulsory for specific specialisms are indicated with superscript letters as shown in the list above.

FHEQ Level 4: potential awards – Cert HE

<p>| Module code | Module title | Core /compulsory /optional | Credit volume | Semester (1 / 2) |</p>
<table>
<thead>
<tr>
<th>Module code</th>
<th>Module title</th>
<th>Core /compulsory /optional</th>
<th>Credit volume</th>
<th>Semester (1 / 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS1023</td>
<td>Chemistry and Maths for the Biosciences</td>
<td>Compulsory</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS1025</td>
<td>Cell Biology</td>
<td>Compulsory</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS1026</td>
<td>Microbiology: An Introduction to the Microbial World</td>
<td>Compulsory</td>
<td>15</td>
<td>1</td>
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<tr>
<td>BMS1032</td>
<td>Introduction to Principles of Physiology &amp; Practical Skills</td>
<td>Compulsory</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS1040</td>
<td>Evolutionary Origins of Biodiversity</td>
<td>Compulsory</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS1041</td>
<td>Biochemistry: A Conceptual Overview</td>
<td>Compulsory</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS1047</td>
<td>Molecular Biology and Genetics – Genes and their Function</td>
<td>Compulsory</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS1027</td>
<td>Food Science and Nutrition</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS1029</td>
<td>Current Topics in Biosciences</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
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</tbody>
</table>

How many optional modules must a student choose in order to achieve the necessary amount of credits to achieve this level? 1 from the 2 listed optional modules.

**FHEQ Level 5: Potential awards – Dip HE**

<table>
<thead>
<tr>
<th>Module code</th>
<th>Module title</th>
<th>Core /compulsory /optional</th>
<th>Credit volume</th>
<th>Semester (1 / 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS2035</td>
<td>Biochemistry – Enzymes and Metabolism</td>
<td>Compulsory</td>
<td>15</td>
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<tr>
<td>BMS2036</td>
<td>Molecular Biology and Genetics: From Genes to Biological Function</td>
<td>Compulsory</td>
<td>15</td>
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<tr>
<td>BMS2038</td>
<td>Integration of Physiological Systems</td>
<td>Compulsory</td>
<td>15</td>
<td>1</td>
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<tr>
<td>BMS2061</td>
<td>Plant Biology and the Environment</td>
<td>Compulsory</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS2062</td>
<td>Animal Biology</td>
<td>Compulsory</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS2037</td>
<td>Cellular Microbiology and Virology</td>
<td>Optional (I)</td>
<td>15</td>
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<tr>
<td>BMS2048</td>
<td>Neuroscience: From Neurones to Behaviour</td>
<td>Optional (N)</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS2043</td>
<td>Analytical and Clinical Biochemistry</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS2044</td>
<td>Microbial Communities and Interactions</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS2045</td>
<td>Introduction to Immunology</td>
<td>Optional (U)</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS2046</td>
<td>Pathology and Medicine</td>
<td>Optional (U)</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS2047</td>
<td>Pharmacology: Introduction to Drug Action</td>
<td>Optional (U, N)</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS2054</td>
<td>Animal Nutrition, Toxicology &amp; Pharmacology</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
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</table>

How many optional modules must a student choose in order to achieve the necessary amount of credits to achieve this level? 3 from the 8 listed optional modules.

**Level P – optional Professional Training Year**

<table>
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<tr>
<th>Module code</th>
<th>Module title</th>
<th>Core /compulsory /optional</th>
<th>Credit volume</th>
<th>Semester (1 / 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMSP007</td>
<td>Professional Training Year Module (Full-Year Work)</td>
<td>Core</td>
<td>120</td>
<td>Year-long</td>
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</table>

How many optional modules must a student choose in order to achieve the necessary amount of credits to achieve this level? N/A

**FHEQ Level 6: Potential awards – BSc (Hons) / BSc (Ord)**

<table>
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<tr>
<th>Module code</th>
<th>Module title</th>
<th>Core /compulsory</th>
<th>Credit volume</th>
<th>Semester (1 / 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Type</td>
<td>Credits</td>
<td>Year</td>
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<tr>
<td>------------</td>
<td>-------------------------------------------------------</td>
<td>------------</td>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>BMS3048</td>
<td>Research Project</td>
<td>Compulsory</td>
<td>30</td>
<td>1 &amp; 2</td>
</tr>
<tr>
<td>BMS3052</td>
<td>Biochemistry: Receptors &amp; Energy Metabolism</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS3054</td>
<td>Clinical Immunology &amp; Immunohaematology</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS3055</td>
<td>Advanced Pharmacology: Selected Topics in Drug Action</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS3060</td>
<td>Biomedical Microbial Products</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS3079</td>
<td>Human Microbial Diseases</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS3062</td>
<td>Veterinary Immunology and Pathology</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS3063</td>
<td>Cancer: Pathogenesis and Therapeutics</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS3064</td>
<td>Neuroscience: From Molecules to Mind</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS3065</td>
<td>Mechanistic &amp; Regulatory Toxicology</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS3066</td>
<td>Biological Rhythms</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS3072</td>
<td>Systems Biology: Genomes in Action</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
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<tr>
<td>BMS3073</td>
<td>Epidemiology of Infectious Diseases</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS3074</td>
<td>Animal Infectious Disease &amp; Veterinary Public Health</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>BMS3090</td>
<td>Introduction to Mathematical Biology</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS3091</td>
<td>Man and the Environment</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS3092</td>
<td>Advanced Technologies in Gene Expression</td>
<td>Optional</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>BMS3094</td>
<td>Animal Diversity</td>
<td>Optional</td>
<td>15</td>
<td>2</td>
</tr>
</tbody>
</table>

How many optional modules must a student choose in order to achieve the necessary amount of credits to achieve this level? 6 from the 17 listed optional modules.

18. Opportunities for placements / work-related learning / collaborative activity – please indicate if any of the following apply to your programme

- Associate Tutor(s)/Guest Speakers/Visiting Academics: Yes
- Professional Training Year (PTY): Yes
- Placement(s) (study or work that are not part of the PTY or Erasmus Scheme): N/A
- Clinical Placement(s) (that are not part of the PTY Scheme): N/A
- ERASMUS Study (that is not taken during Level P): N/A
- Study exchange(s) (that are not part of the ERASMUS Scheme): N/A
- Dual degree: N/A

19. Quality assurance

The Regulations and Codes of Practice for taught programmes can be found at: http://www.surrey.ac.uk/quality_enhancement/index.htm