The structures of the Junior Sophister examinations are outlined below along with information that will appear on the front cover of the exam papers.

Please note that the information given below is informal and is not guaranteed to be error and/or omission free.
PY3P01-1  Quantum Mechanics I

Physics, Physics and Astrophysics, and Nanoscience-Physics and Chemistry of Advanced Materials

<table>
<thead>
<tr>
<th>Module</th>
<th>Lecturer</th>
<th>No. Questions</th>
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<tbody>
<tr>
<td>Quantum Mechanics I</td>
<td>Mauro Ferreira</td>
<td>4</td>
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</table>

Rubric:
Follow the instructions below.
Booklets of Formulae and Tables are available from the invigilator for all students who require them. Graph paper is also available.

Non-programmable calculators are permitted for this examination – please indicate the make and model of your calculator on each answer book used.

ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.
ALL QUESTIONS CARRY EQUAL MARKS.

All Students
Answer TWO questions, in 2 hours.
PY3P02-1  Electromagnetic Interactions I

Physics, Physics and Astrophysics, and Nanoscience-Physics and Chemistry of Advanced Materials

<table>
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<tr>
<th>Module</th>
<th>Lecturer</th>
<th>No. of Questions</th>
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<tr>
<td>Section A</td>
<td>Electromagnetic Theory</td>
<td>PY3P02</td>
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<tr>
<td>Section B</td>
<td>Quantum Optics and Lasers</td>
<td>PY3P02</td>
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</table>

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*ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.*
*ALL QUESTIONS CARRY EQUAL MARKS.*

All Students
Answer *TWO* questions, ONE from Section A and ONE from Section B, in 2 hours.
PY3P03-1  Condensed Matter I

Physics, Physics and Astrophysics, Nanoscience-Physics and Chemistry of Advanced Materials, and Theoretical Physics

<table>
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<tr>
<th>Module</th>
<th>Lecturer</th>
<th>No. Questions</th>
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<tbody>
<tr>
<td>Section A</td>
<td>Crystal Structure</td>
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<td>Section B</td>
<td>Thermal and Electronic Properties</td>
<td>3P03</td>
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ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.

All students
Answer TWO questions, ONE from Section A and ONE from Section B, in 2 hours.
X-PY3A07-1 Experimental Techniques for Astrophysics

Physics and Astrophysics

<table>
<thead>
<tr>
<th>Module</th>
<th>Lecturer</th>
<th>No. of Questions</th>
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<tr>
<td><strong>Section A</strong> Electronics</td>
<td>PY3A07 Joe McCauley</td>
<td>2</td>
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<tr>
<td><strong>Section B</strong> Astrophysical Instrumentation</td>
<td>PY3A07 Brian Espey</td>
<td>2</td>
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</table>

**Rubric:**
Follow the instructions below.
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Non-programmable calculators are permitted for this examination – please indicate the make and model of your calculator on each answer book used.

**ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.**

**All Students**
Answer *TWO* questions, ONE from Section A and ONE from Section B, in 2 hours.
Note that your answer for Section A (Electronics) will have a greater weighting than your answer for Section B (Astrophysical Instrumentation), as the Astrophysical Instrumentation element of this module has already been partly assessed by continuous assessment.
PY3P07-1 Experimental Techniques

Physics

<table>
<thead>
<tr>
<th>Section</th>
<th>Module</th>
<th>Lecturer</th>
<th>No. of Questions</th>
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<tbody>
<tr>
<td>Section A</td>
<td>Electronics</td>
<td>PY3P07</td>
<td>Joe McCauley</td>
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<td>Section B</td>
<td>Instrumentation</td>
<td>PY3P07</td>
<td>Martin Hegner</td>
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*ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.*
*ALL QUESTIONS CARRY EQUAL MARKS*

All Students
Answer *TWO* questions, ONE from Section A and ONE from Section B, in 2 hours.
JUNIOR SOPHISTER ANNUAL EXAMINATION STRUCTURE IN PHYSICS 2016-2017

PY3P04-1 Condensed Matter II

Physics, Nanoscience-Physics and Chemistry of Advanced Materials, and Theoretical Physics

Module Lecturer No. of Questions
Section A Magnetic Properties PY3P04 J. M. D. Coey 2
Section B Physics of Semiconductors PY3P04 David O’Regan 2

Rubric:
Follow the instructions below.
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**ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.**
**ALL QUESTIONS CARRY EQUAL MARKS.**

All Students
Answer **TWO** questions, ONE from Section A and ONE from Section B, in 2 hours.
X-PY3A06-1  Statistical Thermodynamics & Astrophysical Spectroscopy

Physics and Astrophysics

<table>
<thead>
<tr>
<th>Module</th>
<th>Lecturer</th>
<th>No. of Questions</th>
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<tr>
<td>Section A  Statistical Thermodynamics</td>
<td>John McGilp</td>
<td>2</td>
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<tr>
<td>Section B  Astrophysical Spectroscopy</td>
<td>Brian Espey</td>
<td>2</td>
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</tbody>
</table>

**Rubric:**
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Non-programmable calculators are permitted for this examination – please indicate the make and model of your calculator on each answer book used.

**ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.**

**All Students**
Answer *TWO* questions, ONE from Section A and ONE from Section B, in 2 hours.
Note that your answer for Section A (Statistical Thermodynamics) will have a greater weighting than your answer for Section B (Astrophysical Spectroscopy), as the Astrophysical Spectroscopy element of this module has already been partly assessed by continuous assessment.
PY3P06-1 Dynamical Systems

Physics

<table>
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<th>Module</th>
<th>Lecturer</th>
<th>No. of Questions</th>
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</thead>
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<tr>
<td>Statistical Thermodynamics</td>
<td>PY3P06</td>
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<tr>
<td>Mechanics of Matter</td>
<td>PY3P06</td>
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</table>

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*ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.*
*ALL QUESTIONS CARRY EQUAL MARKS.*

**All Students**
Answer *TWO* questions, ONE from Section A and ONE from Section B, in 2 hours.
PY3P05-1 Atomic and Nuclear Physics

Physics, Physics and Astrophysics, and Theoretical Physics

<table>
<thead>
<tr>
<th>Section</th>
<th>Module</th>
<th>Lecturer</th>
<th>No. of Questions</th>
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<td>A</td>
<td>Atomic and Molecular Spectroscopy</td>
<td>PY3P05, Peter Gallagher</td>
<td>2</td>
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<tr>
<td>B</td>
<td>Nuclear Structure</td>
<td>PY3P05, Paul Eastham</td>
<td>2</td>
</tr>
</tbody>
</table>

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*ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.*
*ALL QUESTIONS CARRY EQUAL MARKS.*

**All Students**
Answer *TWO* questions, ONE from Section A and ONE from Section B, in 2 hours.
PY3A03-1 Stellar and Galactic Structure

Physics and Astrophysics, Physics (option) and Theoretical Physics (option)

<table>
<thead>
<tr>
<th>Section</th>
<th>Module</th>
<th>Module Code</th>
<th>Lecturer</th>
<th>No. of Questions</th>
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<tbody>
<tr>
<td>Section A</td>
<td>Stellar Astrophysics</td>
<td>PY3A03</td>
<td>C. S. Jeffrey</td>
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<tr>
<td>Section B</td>
<td>Galaxies: From the Milky Way to Quasars</td>
<td>PY3A03</td>
<td>Jose Groh</td>
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**Rubric:**
Follow the instructions below appropriate.
Booklets of Formulae and Tables are available from the invigilator for all students who require them. Graph paper is also available.

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*ANSWER EACH QUESTION IN A SEPARATE ANSWER BOOK.*
*ALL QUESTIONS CARRY EQUAL MARKS*

**All Students**
Answer *TWO* questions, ONE from Section A and ONE from Section B, in 2 hours.
PY3C01-2  Computer Simulation I

Physics and Astrophysics, Physics (option) and Theoretical Physics (option)

<table>
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<tr>
<th>Module</th>
<th>Lecturer</th>
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<tr>
<td>Numerical Methods I</td>
<td>PY3C01</td>
<td>Stefan Hutzler</td>
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ALL QUESTIONS CARRY EQUAL MARKS

All Students
Answer ONE question, in 1 hour.