ACADEMIC PROGRAMME OF STUDIES
2015
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ACADEMIC PROGRAMME

NUS High School of Mathematics and Science is a specialised independent school offering the 6-year Integrated Programme. It aims to nurture well-rounded and world-ready scientific minds through its academic programme, affective and character education, and co-curricular activities. Upon successful completion of our programme, our students graduate with the NUS High School Diploma that is recognized by renowned local and overseas universities. NUS High School is a place where students will be nurtured to make distinguished contributions as Pioneers, Achievers, Thinkers & Humanitarians in the years to come.

1. Curriculum Structure

The NUS High School curriculum is organised around a 2−2−2 structure which allows students more flexibility in meeting the requirements to move up to the next phase, e.g. from Foundation Years to Advancement Years.

<table>
<thead>
<tr>
<th>Foundation Years</th>
<th>Years 1 &amp; 2</th>
<th>Students will acquire the fundamentals and build their base knowledge in subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advancement Years</td>
<td>Years 3 &amp; 4</td>
<td>Students will enhance their knowledge and have the opportunity to apply their knowledge</td>
</tr>
<tr>
<td>Specialisation Years</td>
<td>Years 5 &amp; 6</td>
<td>Students will be engaged in doing advanced courses in their areas of specialisation</td>
</tr>
</tbody>
</table>

1.1 Foundation and Advancement Years

Students are to read and pass all Core modules of the following academic subjects during their Foundation and Advancement Years:

- Mathematics
- Biology
- Chemistry
- Physics
- English Language
- Mother Tongue, where required
- Humanities, Art and Music, where required

Please refer to the write-ups of the respective academic Departments for details.

Students are also expected to read modules under the Da Vinci Programme. (Please refer to the Da Vinci Programme for details)

1.2 Specialisation Years

Students are to complete the following during their Specialisation Years:

<table>
<thead>
<tr>
<th>English Language</th>
<th>Students have to read all English Language Core modules in Years 5 and 6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother Tongue</td>
<td>Students have to continue taking Mother Tongue modules, if they have not already fulfilled the requirements by Year 4. (Please refer to the Mother Tongue Modules Offered, for details.)</td>
</tr>
<tr>
<td>Three Compulsory</td>
<td>Students have to read Mathematics and at least TWO Sciences as Major</td>
</tr>
</tbody>
</table>
Major Subjects

i.e. students are required to read a minimum of THREE Major subjects:
- Mathematics
- Science Subject 1
- Science Subject 2

Optional Major Subject

Students may read ONE of these subjects as the fourth Major, provided they have met the pre-requisite requirements of the selected subject. i.e. students are allowed to read a maximum of FOUR Major subjects, which can be from the following subjects:
- Science Subject 3
- Art
- Economics
- English Literature
- Geography
- History
- Music

Advanced Research Project

Advanced Research Project (ARP) is part of the Da Vinci Programme.

Please refer to the write-ups of the respective academic Departments for details.

1.2.1 Major with Honours

For Mathematics, Biology, Chemistry, Physics and Computing Studies*, the school offers specialization at Major and Major with Honours level. For Major with Honours, students will cover topics that are beyond the typical high school curriculum. Students who have maintained a consistently high achievement in the modules that they have read before the Specialisation Years may qualify, and be approved by the academic Departments, to read their choice(s) of Major subject(s) as Major(s) with Honours.

To complete a Major with Honours, Honours modules must be read in addition to the Core modules read at the Major level.

* Computing Studies at Major with Honours is offered to students graduating from 2016 onwards.

1.2.2 Optional Examinations

Years 5 and 6 students are encouraged to sit for the Advanced Placement (AP) Examinations which are optional examinations offered by the United States College Board. AP results may enhance chances of gaining admission to overseas colleges/universities. For some universities, AP results are required for admission.

2. Modular System

The NUS High School curriculum is based on a modular system which aims to provide a healthy diversity of learning opportunities so that students can develop to their full potential.
2.1 Types of Modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE</td>
<td>Essential modules that students must pass. (These include the Honours modules that may be taken during the Specialisation Years. <strong>Honours</strong> modules are advanced modules designed at university undergraduate level for students specifically reading Mathematics or Science subject at Major with Honours level)</td>
</tr>
<tr>
<td>ELECTIVE</td>
<td>Modules that build on the Core modules to give greater depth and deeper understanding to students for the subject</td>
</tr>
<tr>
<td>ENRICHMENT</td>
<td>Modules that are offered to students who wish to broaden their interest</td>
</tr>
</tbody>
</table>

2.2 Module Code

Each module of study has a unique module code consisting of a two-letter prefix that denotes the discipline (see List of Subject Codes) and four digits:

- First two letters: Subject code (see below)
- The first digit indicates the academic level of module offered.
- The second digit is used to indicate the type of module: 1 for Core, 2 for Elective, 3 for Enrichment and 4 for Honours.
- The last two digits indicate the module number.
- For some modules, there is a suffix letter.
  - A letter ‘A’ indicates that the module is a preclusion and taken in lieu of the core module, with different assessment weighting.
  - A letter ‘C’ indicates that a Computing Studies elective module is a core pre-requisite and automatically included for a Computing Studies Major student for computation of CAP.
  - A letter ‘M’ indicates that a Non Tamil Indian Language (NTIL) module is offered by external language agencies that are recognized by Ministry of Education (MOE). This letter also applies for approved foreign languages modules in lieu of a Mother Tongue Language, conducted in MOE approved language centers.
  - A letter ‘V’ indicates that the module is offered by external agencies (e.g. research institutes) but is considered a school module.

List of Subject Codes

<table>
<thead>
<tr>
<th>AE Affective &amp; Character Education</th>
<th>CL Chinese</th>
<th>EL English Language</th>
<th>GM German</th>
<th>MA Mathematics</th>
<th>PE Physical Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR Art</td>
<td>CM Chemistry</td>
<td>EN English Literature</td>
<td>HD Hindi</td>
<td>MH Higher Malay</td>
<td>TH Higher Tamil</td>
</tr>
<tr>
<td>BG Bengali</td>
<td>CS Computing Studies</td>
<td>FR French</td>
<td>HY History</td>
<td>ML Malay</td>
<td>TL Tamil</td>
</tr>
<tr>
<td>BL Biology</td>
<td>DV Da Vinci</td>
<td>GE Geography</td>
<td>IH Integrated Humanities</td>
<td>MU Music</td>
<td>UD Urdu</td>
</tr>
<tr>
<td>CH Higher Chinese</td>
<td>EC Economics</td>
<td>GJ Gujarati</td>
<td>JP Japanese</td>
<td>PC Physics</td>
<td></td>
</tr>
</tbody>
</table>

Example 1:
**EL2106** is an English module (EL) taught at academic level two (2). It is a core module (1).

Example 2:
**PC4304** is a Physics module (PC) taught at academic level four (4). It is an enrichment module (3).
Example 3: 
MA3206V is a Mathematics module (MA) taught at academic level three (3). It is an elective module (2) that is conducted at an external agency.

2.3 Pre-requisites/Co-requisites/Preclusions

<table>
<thead>
<tr>
<th>Pre-requisites</th>
<th>Modules which have to be satisfactorily completed in order to qualify to read the module that the student wants to register for. (Modules equivalent to the pre-requisites may also be accepted – please consult the relevant Department)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-requisites</td>
<td>Modules that are to be taken concurrently</td>
</tr>
<tr>
<td>Preclusions</td>
<td>Modules which have similar emphases and should not be taken together within a student’s candidature</td>
</tr>
</tbody>
</table>

3. Grading System

3.1 Assessment

Students are assessed through a combination of Continual Assessments (CA) and End-of-Semester Examinations. Continual Assessment can be based on quizzes, assignments, tests, practicals, projects, reports, presentations, etc. Students’ academic progress will be noted by their subject teachers and mentors, who will be able to identify areas of difficulty and advise appropriate action.

3.2 Grade Point System

Academic performance for CORE, ELECTIVE and HONOURS modules is measured by Grade Points on a 5-point scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>A+</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>D+</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>5.0</td>
<td>4.5</td>
<td>4.0</td>
<td>3.5</td>
<td>3.0</td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
<td>1.0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Point</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A D grade and above are considered as passing grades.

No Grade Points are awarded for the following types of modules. The performance of these types of modules is not used in the computation of GPA/CAP.

<table>
<thead>
<tr>
<th>Enrichment Modules</th>
<th>Distinction</th>
<th>Merit</th>
<th>Pass</th>
<th>Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Da Vinci Programme</td>
<td>Excellent</td>
<td>Merit</td>
<td>Satisfactory</td>
<td>Unsatisfactory</td>
</tr>
<tr>
<td>Modules</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Indicators for Modules</th>
<th>Exempted (EXE)</th>
<th>Students exempted from taking a Core module by the relevant academic Department will be awarded the Modular Credit(s), but will not receive a Grade Point. Refer to section 3.4.</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Progress (IP)</td>
<td>For modules that extend more than one semester, the Grade Point will be given at the conclusion of the module. The status “IP” is assigned during the intervening semesters.</td>
<td></td>
</tr>
</tbody>
</table>


3.3 Grade Point Average (GPA) versus Cumulative Average Point (CAP)

<table>
<thead>
<tr>
<th>GPA</th>
<th>CAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Shows academic performance of the CURRENT SEMESTER ONLY</td>
<td>• Shows the academic performance of ALL THE SEMESTERS UP TO THE CURRENT TIME POINTd</td>
</tr>
<tr>
<td>• Grade points of <strong>ALL the Core, Elective and Honours</strong> modules taken during that semester are used for the computation of GPA</td>
<td>• Grade points of <em><em>ALL the Core, Elective</em> and Honours</em>* modules are used for the computation of CAP</td>
</tr>
<tr>
<td></td>
<td>• It does not include Exempted and Enrichment modules</td>
</tr>
</tbody>
</table>

\[
\text{GPA/CAP} = \frac{\text{sum (module grade point x MC assigned to module)}}{\text{sum (MC assigned to modules)}}
\]

*d Refer to Section 3.3.1 CAP descriptors.

*Electives are selected by the system which will maximize the CAP for students. Exception is at Year 6 Semester 2, where students will select electives of their choice for inclusion into their Graduation CAP.

3.3.1 CAP descriptors

<table>
<thead>
<tr>
<th>Students from Years</th>
<th>Type of CAP</th>
<th>Computed from</th>
<th>Include only</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>Year 1 &amp; 2 biennial CAP</td>
<td>Year 1 up to current semester</td>
<td>Level 1000-2000 modules</td>
</tr>
<tr>
<td>3 &amp; 4</td>
<td>Year 3 &amp; 4 biennial CAP</td>
<td>Year 3 up to current semester</td>
<td>Level 3000-4000 modules</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>Graduation CAP</td>
<td>Refer to section 4.3</td>
<td></td>
</tr>
</tbody>
</table>

Subject CAP

Computed from grades of all Core, Elective and Honours (if applicable) modules, taken from Years 3 – 6, in that subject. Subject CAP at Years 1 & 2 will be shown for records.

The following types of CAP are applicable only to Years 5 & 6:

**Graduation CAP** – refer to section 4.3.

**Graduation CAP without Mother Tongue** is Graduation CAP with grades of Mother Tongue modules excluded from it.

**Major CAP** is computed from grades of all Core modules at Level 5000-6000, in that subject.

**Honours CAP** is computed from grades of all Honours modules in that subject.
3.4 Exemption of Modules

Teachers will recommend suitable students for diagnostic tests. Students can be granted exemption from reading a module if they fulfill the following conditions:

- Excellent performance in diagnostic tests and;
- Other Department requirements, subject to approval

Students fulfilling these conditions will be granted “EXE” status for that particular module and no grade point is awarded. Modular credits are fulfilled.

Interested students who wish to seek module exemption should approach the respective academic Departments for more information.

3.5 Acceleration of Modules

Students who are granted exemption of a module may proceed to read another module at a higher academic level in lieu. For example, a Year 1 student granted exemption from MA1110 (pre-requisite to MA2112) may accelerate to read MA2112 in his/her Year 1 of study. MA2112’s grade will be computed into the student’s GPA of the semester it is read, and upon the student’s entry into his/her official Year 2 of study, into his/her CAP. The accelerated module will be printed out in the semester progress report.

3.6 Failing and Repeating Modules

Students who fail a Core module (F Grade) shall sit for a Viva. A student who passes the Viva will be given a D grade. For CAP computation, the D grade will be used instead of the original F grade. A student who fails the Viva will have to repeat the module when it is offered again. Upon passing the repeated module, the student will be awarded a new grade.

Students who fail a module which is a pre-requisite to a higher level module would not be allowed to read the higher level module.

However, a student may read both modules concurrently, on a case-by-case basis, subject to department and school approval.

4. Promotion and Graduation

4.1 CAP for Promotion

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Minimum CAP for promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years 1 &amp; 2</td>
<td>2.0</td>
</tr>
<tr>
<td>Years 3 &amp; 4</td>
<td>2.2</td>
</tr>
</tbody>
</table>

(for students who matriculate in 2014 and earlier)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Minimum CAP for promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years 1 - 5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

(for students who matriculate in 2015 and later)
Students who do not satisfy the minimum overall CAP for promotion will have to repeat the previous Year of Study. This essentially translates into repeating all Core modules. All Core modules must be passed to satisfy promotion requirements.

4.2 Graduation Requirements

For students to graduate with the NUS High School Diploma, they must fulfill ALL the following requirements:

- Obtain a minimum Graduation CAP of 2.5
- Pass all Core modules for English Language
- Complete respective Mother Tongue modules, as required
- Pass all Core modules for Mathematics, Biology, Chemistry and Physics in Years 1 – 4
- Pass all Core modules for Mathematics and two Science Majors
- Pass respective Core modules for Humanities, Art and Music in Years 1 – 4, as required
- Obtain at least a Satisfactory grade in Advanced Research Project

Students must have completed at least four years of residency studies (including Years 4, 5 and 6) at NUS High School to graduate with the NUS High School Diploma.

4.3 Classification of Diploma

Students who graduate are awarded the NUS High School Diploma with High Distinction, Distinction, Merit or Pass, based on the Graduation CAP OR Graduation CAP without Mother Tongue, whichever is higher (computed up to the first decimal place).

<table>
<thead>
<tr>
<th>Weighting contribution of Core modules (including Honours and Elective modules, if applicable) towards Graduation CAP from various years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students who matriculate in 2015 and earlier</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class of Diploma</th>
<th>High Distinction</th>
<th>Distinction</th>
<th>Merit</th>
<th>Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduation CAP OR Graduation CAP without Mother Tongue (whichever is higher)</td>
<td>≥ 4.5</td>
<td>4.0 – 4.4</td>
<td>3.0 – 3.9</td>
<td>2.5 – 2.9</td>
</tr>
</tbody>
</table>

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