

**Block view of the study programme**

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**Block 1**
**Compulsory courses**

|            |   |    |          |          |          |   |
|------------|---|----|----------|----------|----------|---|
| MATH0073-1 | <i>Elementary mathematics</i><br>- Part 1 - Julien LEROY<br>- Part 2 - Julien LEROY - [15h Mon. WS] | Q1 | 10<br>20 | 5<br>25  | -<br>[+] | 7 |
| MATH0069-1 | <i>Matrix calculation</i> - Michel RIGO   | Q1 | 30       | 25       | -        | 7 |
| MATH0071-1 | <i>Analysis I, part 1</i><br>- Part 1 - Samuel NICOLAY<br>- Part 2 - Samuel NICOLAY                 | Q1 | 35<br>10 | 20<br>10 | -<br>-   | 8 |
| PHYS1985-1 | <i>General physics I</i> - John MARTIN, Nicolas VANDEWALLE  | Q1 | 40       | 40       | -        | 7 |
| LANG2967-2 | <i>English: introduction</i> (english language) - Véronique DOPPAGNE, ISLV                          | Q1 | 30       | -        | -        | 2 |
| MATH0070-1 | <i>Linear algebra</i> - Michel RIGO   | Q2 | 30       | 25       | -        | 6 |
| MATH0072-1 | <i>Analysis I, part 2</i><br>- Part 1 - Samuel NICOLAY<br>- Part 2 - Samuel NICOLAY                 | Q2 | 25<br>20 | 20<br>10 | -<br>-   | 7 |
| MATH1203-1 | <i>Geometry I</i><br>- Part 1 - Pierre MATHONET<br>- Part 2 - Pierre MATHONET                       | Q2 | 25<br>15 | 15<br>15 | -<br>-   | 7 |
| MATH1472-1 | <i>Probability and statistics</i> - Amir ABOUBACAR - [10h Mon. WS]                                  | Q2 | 25       | 15       | [+]      | 5 |
| MATH2010-1 | <i>Mathematical software</i> - Emilie CHARLIER  | Q2 | 15       | 30       | -        | 4 |

**Block 2**
**Compulsory courses**

|            |   |    |    |    |     |   |
|------------|---|----|----|----|-----|---|
| MATH0080-1 | <i>Differential calculus</i> - JeanPierre SCHNEIDERS<br><b>Prerequisite :</b><br>MATH0072-1 - Analyse I, partie 2<br>MATH0071-1 - Analyse I, partie 1   | Q1 | 30 | 30 | -   | 6 |
| MATH0248-1 | <i>Geometry II</i> - Pierre MATHONET<br><b>Prerequisite :</b><br>MATH1203-1 - Géométrie I<br><b>Corequisite :</b><br>MATH0080-1 - Calcul différentiel   | Q1 | 30 | 30 | -   | 6 |
| MATH2011-1 | <i>Linear algebra supplements</i> - Céline ESSER<br><b>Prerequisite :</b><br>MATH0070-1 - Algèbre linéaire<br>MATH0069-1 - Calcul matriciel   | Q1 | 20 | 20 | -   | 4 |
| MATH0503-1 | <i>Logic and mathematical approach of programming</i> - Michel RIGO - [30h Mon. WS]<br><b>Prerequisite :</b><br>MATH2010-1 - Logiciels mathématiques  | Q1 | 20 | -  | [+] | 5 |
| MATH2006-2 | <i>Introduction to numerical analysis</i> - JeanPierre SCHNEIDERS<br><b>Prerequisite :</b><br>MATH0072-1 - Analyse I, partie 2<br>MATH0071-1 - Analyse I, partie 1<br><b>Corequisite :</b><br>MATH0503-1 - Logique et approche mathématique de la programmation | Q2 | 30 | 30 | -   | 6 |
| MATH0081-1 | <i>Integral calculation</i> - Samuel NICOLAY<br><b>Prerequisite :</b><br>MATH0072-1 - Analyse I, partie 2<br>MATH0071-1 - Analyse I, partie 1   | Q2 | 30 | 30 | -   | 6 |

|            |   |    |    |    |     |          |
|------------|---|----|----|----|-----|----------|
| MATH0474-1 | <i>Statistics</i> - Gentiane HAESBROECK - [10h Mon. WS]<br><b>Prerequisite :</b><br>MATH0071-1 - Analyse I, partie 1<br>MATH0072-1 - Analyse I, partie 2<br>MATH1472-1 - Probabilité et statistique<br><b>Corequisite :</b><br>MATH0080-1 - Calcul différentiel<br>MATH0081-1 - Calcul intégral | Q2 | 25 | 15 | [+] | <b>5</b> |
| MATH0246-2 | <i>Algebraic structures</i> - Julien LEROY  | Q2 | 30 | 30 | -   | <b>6</b> |
| LANG0076-4 | <i>English I</i> (english language) - Véronique DOPPAGNE<br><b>Prerequisite :</b><br>LANG2967-2 - Anglais : introduction  | TA | 45 | -  | -   | <b>4</b> |

#### Optional courses

In agreement with the Jury, choose courses for a total of 12 credits from the courses offered below:

#### Mathematics applied to economics and management

|            |   |    |    |    |     |          |
|------------|---|----|----|----|-----|----------|
| ECON0323-1 | <i>First principles of economics</i> - HenryJean GATHON   | Q1 | 26 | -  | -   | <b>3</b> |
| GEST0832-4 | <i>Financial Markets</i> - Georges HÜBNER   | Q2 | 40 | 15 | -   | <b>5</b> |
| MATH1222-3 | <i>Introduction to stochastic processes</i> - Amir ABOUBACAR, Pierre GEURTS - [10h Mon. WS]<br><b>Prerequisite :</b><br>MATH1472-1 - Probabilité et statistique<br><b>Corequisite :</b><br>MATH0474-1 - Statistique | Q2 | 20 | 10 | [+] | <b>4</b> |

#### Physics

|            |  |    |    |    |   |          |
|------------|--|----|----|----|---|----------|
| MECA0201-1 | <i>Analytical Mechanics I</i> - Pierre DAUBY<br><b>Prerequisite :</b><br>PHYS1985-1 - Physique générale I<br>MATH1203-1 - Géométrie I<br>MATH0070-1 - Algèbre linéaire<br><b>Corequisite :</b><br>MATH0080-1 - Calcul différentiel | Q1 | 30 | 30 | - | <b>6</b> |
| PHYS1986-1 | <i>General physics II, Part A</i> - Ngoc Duy NGUYEN<br><b>Prerequisite :</b><br>MATH0070-1 - Algèbre linéaire<br>MATH0071-1 - Analyse I, partie 1<br>MATH1203-1 - Géométrie I<br>PHYS1985-1 - Physique générale I                  | Q2 | 35 | 25 | - | <b>6</b> |

#### Computer science

|            |   |    |    |    |     |          |
|------------|---|----|----|----|-----|----------|
| INFO2009-2 | <i>Introduction to computer science</i> - Bernard BOIGELOT<br><b>Corequisite :</b><br>MATH0503-1 - Logique et approche mathématique de la programmation                             | Q1 | 24 | 14 | -   | <b>4</b> |
| INFO0061-4 | <i>Computers organization</i> - Bernard BOIGELOT<br><b>Corequisite :</b><br>MATH0503-1 - Logique et approche mathématique de la programmation                                       | Q2 | 15 | 15 | -   | <b>3</b> |
| INFO0062-1 | <i>Object-oriented programming</i> (english language) - Bernard BOIGELOT - [20h Proj.]<br><b>Corequisite :</b><br>MATH0503-1 - Logique et approche mathématique de la programmation | Q2 | 25 | 20 | [+] | <b>5</b> |

#### Optional free course

|            |   |    |    |    |   |          |
|------------|---|----|----|----|---|----------|
| OCEA0053-1 | <i>Study of Oceans and Coastal Management</i> - Sylvie GOBERT, Anne GOFFART | Q2 | 15 | 25 | - | <b>4</b> |
|------------|---|----|----|----|---|----------|

#### Block 3

#### Compulsory courses

|            |   |    |    |    |   |          |
|------------|---|----|----|----|---|----------|
| MATH0510-1 | <i>Additional analysis</i> - JeanPierre SCHNEIDERS<br><b>Prerequisite :</b><br>MATH2006-2 - Introduction à l'analyse numérique<br>MATH0081-1 - Calcul intégral<br>MATH0248-1 - Géométrie II   | Q1 | 30 | 30 | - | <b>6</b> |
| MATH0256-2 | <i>Differential geometry I</i> - Pierre MATHONET  | Q1 | 25 | 15 | - | <b>5</b> |
| MATH0499-1 | <i>Graph theory</i> - Michel RIGO<br><b>Prerequisite :</b><br>MATH0070-1 - Algèbre linéaire   | Q1 | 25 | 20 | - | <b>4</b> |
| MATH2023-1 | <i>Theory of formal languages</i> - Julien LEROY  | Q1 | 30 | 30 | - | <b>6</b> |
| MATH2250-1 | <i>Galois theory</i> - Emilie CHARLIER<br><b>Prerequisite :</b><br>MATH0246-2 - Structures algébriques  | Q2 | 30 | 30 | - | <b>6</b> |
| MATH0511-1 | <i>Introduction to harmonic analysis</i> - Françoise BASTIN<br><b>Prerequisite :</b><br>MATH0080-1 - Calcul différentiel<br>MATH0081-1 - Calcul intégral  | Q2 | 30 | 30 | - | <b>6</b> |
| DOCU0044-1 | <i>Techniques of documentation and communication, integrated project</i><br>- Part 1: <i>Techniques of documentation and communication</i> - Fabienne PROSMANS<br>- Part 2: <i>Integrated project</i> - Emilie CHARLIER<br><b>Prerequisite :</b><br>MATH0246-2 - Structures algébriques<br>MATH0248-1 - Géométrie II<br>MATH0482-3 - Probabilité et statistique<br>MATH0081-1 - Calcul intégral<br><b>Corequisite :</b><br>MATH0499-1 - Théorie des graphes | TA | 30 | -  | - | <b>6</b> |
| LANG0077-6 | <i>English 2 (english language)</i> - Véronique DOPPAGNE, Caroline VAN LINTHOUT<br><b>Prerequisite :</b><br>LANG0076-4 - Anglais 1  | TA | 45 | -  | - | <b>4</b> |

#### Optional courses

With the jury's agreement, chose the MATH0474-1 Statistics course not followed in Block 2.

|            |   |    |    |    |     |          |
|------------|---|----|----|----|-----|----------|
| MATH0474-1 | <i>Statistics</i> - Gentiane HAESBROECK - [10h Mon. WS] | Q2 | 25 | 15 | [+] | <b>5</b> |
|------------|---|----|----|----|-----|----------|

In agreement with the Jury, choose courses for a total of 12 credits from the courses offered below or from the elective courses not already chosen in block 2:

#### Mathematics applied to economics and management

|            |  |    |    |   |   |          |
|------------|--|----|----|---|---|----------|
| MQGE0001-6 | <i>Operations Research (english language)</i> - Yves CRAMA<br><b>Prerequisite :</b><br>MATH1222-3 - Introduction aux processus stochastiques | Q1 | 45 | - | - | <b>6</b> |
| FINA0053-1 | <i>Investments and Portfolio Management (english language)</i> - Georges HÜBNER<br><b>Prerequisite :</b><br>GEST0832-4 - Marchés financiers  | Q2 | 30 | - | - | <b>6</b> |

#### Physics

|            |   |    |    |    |   |          |
|------------|---|----|----|----|---|----------|
| MECA0523-1 | <i>Analytical mechanics II</i><br>- Part A - Pierre DAUBY<br>- Part B - Pierre DAUBY<br><b>Prerequisite :</b> | Q1 | 12 | 15 | - | <b>6</b> |
|            |   |    | 18 | 15 | - |          |

|                         |   |    |    |    |     |  |  |          |
|-------------------------|---|----|----|----|-----|--|--|----------|
|                         | MECA0201-1 - Mécanique analytique I   |    |    |    |     |  |  |          |
| MECA0523-2              | <i>Analytical mechanics II, Part A</i> - Pierre DAUBY                                     | Q1 | 12 | 15 | -   |  |  | <b>3</b> |
|                         | <b>Prerequisite :</b><br>MECA0201-1 - Mécanique analytique I                              |    |    |    |     |  |  |          |
| SPAT0065-1              | <i>Introduction to Astronomy</i> - Grégor RAUW  | Q1 | 20 | 10 | -   |  |  | <b>3</b> |
| PHYS3030-2              | <i>Electromagnetism</i>   | Q2 |    |    |     |  |  | <b>6</b> |
|                         | - <i>Partim A</i> - John MARTIN   |    | 30 | 15 | -   |  |  |          |
|                         | - <i>Partim B</i> - John MARTIN   |    | -  | 5  | -   |  |  |          |
|                         | <b>Corequisite :</b><br>PHYS1986-1 - Physique générale II                                 |    |    |    |     |  |  |          |
| <b>Computer science</b> |   |    |    |    |     |  |  |          |
| MATH0462-1              | <i>Discrete optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.]          | Q2 | 30 | 20 | [+] |  |  | <b>6</b> |
| INFO0054-1              | <i>Functional programming</i> - Christophe DEBRUYNE - [15h Proj.]                         | Q1 | 28 | 24 | [+] |  |  | <b>6</b> |
| <b>Mathematics</b>      |   |    |    |    |     |  |  |          |
| MATH0257-2              | <i>Complex analysis</i> - JeanPierre SCHNEIDERS   | Q1 | 30 | 30 | -   |  |  | <b>6</b> |
|                         | <b>Prerequisite :</b><br>MATH0080-1 - Calcul différentiel<br>MATH0081-1 - Calcul intégral |    |    |    |     |  |  |          |
| MATH0212-2              | <i>General topology</i> - Céline ESSER - [10h Mon. WS]                                    | Q2 | 30 | 20 | [+] |  |  | <b>6</b> |
| [...]                   | elective courses not already chosen in block 2  |    |    |    |     |  |  |          |