

**AY2024-25 CURRICULUM FOR ENVIRONMENTAL EARTH SYSTEMS SCIENCE (ECOLOGY AND ECOSYSTEMS)**  
**WITH CN YANG SCHOLARS PROGRAMME\_Internship**  
**(FIRST YEAR ADMISSION)**

Last Updated : 17-Oct-24

| SUMMARY OF ACADEMIC UNIT REQUIREMENT |             |           |          |           |           |           |            |
|--------------------------------------|-------------|-----------|----------|-----------|-----------|-----------|------------|
| Year of Study                        | School Core | CNYS Core | MPE      | CC        | FC        | BDE       | Total AU   |
| 1                                    | 16          | 27        | 0        | 5         | 0         | 0         | 48         |
| 2                                    | 16          | 10        | 0        | 8         | 0         | 3         | 37         |
| 3                                    | 10          | 0         | 0        | 0         | 3         | 11        | 24         |
| 4                                    | 15          | 0         | 0        | 0         | 10        | 0         | 25         |
| <b>Total</b>                         | <b>57</b>   | <b>37</b> | <b>0</b> | <b>13</b> | <b>13</b> | <b>14</b> | <b>134</b> |

| YEAR 1 SEMESTER 1 |                              |          |           |                       |
|-------------------|------------------------------|----------|-----------|-----------------------|
| Course Code       | Course Title                 | Type     | AU        | Pre-Requisite/Remarks |
| CY1001            | Cell                         | CNY-Core | 3         | CNYS Courses          |
| CY1101            | Molecule                     | CNY-Core | 4         |                       |
| CY1308            | Physics                      | CNY-Core | 3         |                       |
| CY1500            | Introduction to Research     | CNY-Core | 2         |                       |
| CY1601            | Mathematics I                | CNY-Core | 4         |                       |
| ES1001            | E2S2 Environment and Society | C        | 4         |                       |
|                   |                              |          | <b>20</b> |                       |

| YEAR 1 SEMESTER 2 |   |          |           |                       |
|-------------------|---|----------|-----------|-----------------------|
| Course Code       | Course Title  | Type     | AU        | Pre-Requisite/Remarks |
| CY1007            | Climate Change  | CNY-Core | 3         | CNYS Courses          |
| CY1602            | Mathematics II  | CNY-Core | 4         |                       |
| ES1003            | E2S2 Solid Earth                                      | C        | 4         |                       |
| ES2003            | E2S2 Biosphere  | C        | 4         |                       |
| CC0002            | Navigating the Digital World                          | CC       | 2         |                       |
| CC0005            | Healthy Living & Mental Wellbeing in an Aging Society | CC       | 3         |                       |
|                   |   |          | <b>20</b> |                       |

| YEAR 1 SPECIAL SEMESTER |                               |          |          |                       |
|-------------------------|-------------------------------|----------|----------|-----------------------|
| Course Code             | Course Title                  | Type     | AU       | Pre-Requisite/Remarks |
| CY2003                  | Research Attachment 3         | CNY-Core | 4        | CNYS Course           |
| ES1006                  | Introductory Field Experience | C        | 4        | ES1001                |
|                         | Overseas Learning Trip        |          |          |                       |
|                         |                               |          | <b>8</b> |                       |

| YEAR 2 SEMESTER 1 |  |          |           |                       |
|-------------------|--|----------|-----------|-----------------------|
| Course Code       | Course Title   | Type     | AU        | Pre-Requisite/Remarks |
| CY0001            | Writing Across the Disciplines                         | CNY-Core | 3         | CNYS Course           |
| ES2001            | Computational Earth Systems Science                    | C        | 4         | CY1601                |
| ES2802            | GIS and the Earth System                               | C        | 3         | ES1003 + ES2001       |
| BS1008            | Bioinformatics and Statistics                          | C        | 3         |                       |
| SP0061            | Science & Technology for Humanity                      | CC       | 3         |                       |
| CC0006            | Sustainability: Human, Social, Economics & Environment | CC       | 3         |                       |
|                   |  |          | <b>19</b> |                       |

| YEAR 2 SEMESTER 2 |   |          |           |  |
|-------------------|---|----------|-----------|--|
| Course Code       | Course Title  | Type     | AU        | Pre-Requisite/Remarks  |
| CY0002            | Ethics  | CNY-Core | 3         | CNYS Course  |
| CY2001            | Research Attachment 1                                       | CNY-Core | 4         | CNYS Course<br>2-semester long, course registered only in Sem 2 (similar to URECA) |
| ES0001            | Physical Environments of Singapore                          | C        | 3         |  |
| ES2301            | Principles of Heredity and Ecological Genetics              | C        | 3         | ES2003 + CY1101  |
| MH3511            | Data Analysis with Computer                                 | BDE      | 3         | MH2500/BS1008<br>pre-req for ES3307  |
| ML0004            | Career and Entrepreneurial Development for the Future World | CC       | 2         |  |
|                   |   |          | <b>18</b> |  |

| YEAR 3 SEMESTER 1 |  |      |           |                          |
|-------------------|--|------|-----------|--------------------------|
| Course Code       | Course Title                               | Type | AU        | Pre-Requisite/Remarks    |
| BS2002            | Microbiology                               | BDE  | 3         | CY1001<br>Replace ES2304 |
| ES3307            | Experimental Design & Analysis for Ecology | C    | 4         | BS1001, MH3511           |
| XXXXXX            | Broadening and Deepening Electives 1       | BDE  | 3         |                          |
|                   |  |      | <b>10</b> |                          |

| YEAR 3 SEMESTER 2 |  |      |           |   |
|-------------------|--|------|-----------|---|
| Course Code       | Course Title   | Type | AU        | Pre-Requisite/Remarks   |
| ES2303            | Introduction to Ecology  | C    | 3         | CY1001 + ES2003   |
| ES3301            | Plant and Animal Physiology  | C    | 3         | CY1001 + ES2003 + ES2301  |
| ES0002            | Fundamentals of Data Science for Earth and Environmental Systems Science | FC   | 3         | CY1601, ES2001  |
| CY1307            | Quantum  | BDE  | 3         | Students can choose to opt out and replace with any other BDE course (3 AU) |
| XXXXXX            | Broadening and Deepening Electives 2                                     | BDE  | 2         |   |
|                   |  |      | <b>14</b> |   |

| YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1 |                                       |      |           |                       |
|---|---------------------------------------|------|-----------|-----------------------|
| Course Code                                 | Course Title                          | Type | AU        | Pre-Requisite/Remarks |
| ES4301                                      | Conservation Biology and Biodiversity | C    | 3         |                       |
| ES4111                                      | Overseas Final Year Project           | C    | 12        | CNYS Course           |
|   |                                       |      | <b>15</b> |                       |

| YEAR 4 SEMESTER 2 |                         |      |           |                       |
|-------------------|-------------------------|------|-----------|-----------------------|
| Course Code       | Course Title            | Type | AU        | Pre-Requisite/Remarks |
| ES4003            | Professional Internship | FC   | 10        |                       |
|                   |                         |      | <b>10</b> |                       |

Total AU for Graduation : **134**

**AY2024-25 CURRICULUM FOR ENVIRONMENTAL EARTH SYSTEMS SCIENCE (GEOSCIENCES)  
WITH CN YANG SCHOLARS PROGRAMME\_Internship  
(FIRST YEAR ADMISSION)**

Last Updated : 17-Oct-24

| SUMMARY OF ACADEMIC UNIT REQUIREMENT |             |            |          |           |           |           |            |
|--------------------------------------|-------------|------------|----------|-----------|-----------|-----------|------------|
| Year of Study                        | School Core | CNYSB-Core | MPE      | CC        | FC        | BDE       | Total AU   |
| 1                                    | 16          | 27         | 0        | 5         | 0         | 0         | 48         |
| 2                                    | 16          | 10         | 0        | 8         | 0         | 0         | 34         |
| 3                                    | 9           | 0          | 0        | 0         | 3         | 13        | 25         |
| 4                                    | 17          | 0          | 0        | 0         | 10        | 0         | 27         |
| <b>Total</b>                         | <b>58</b>   | <b>37</b>  | <b>0</b> | <b>13</b> | <b>13</b> | <b>13</b> | <b>134</b> |

| YEAR 1 SEMESTER 1 |                              |          |           |                       |  |
|-------------------|------------------------------|----------|-----------|-----------------------|--|
| Course Code       | Course Title                 | Type     | AU        | Pre-Requisite/Remarks |  |
| CY1001            | Cell                         | CNY-Core | 3         | CNYSB Courses         |  |
| CY1101            | Molecule                     | CNY-Core | 4         |                       |  |
| CY1308            | Physics                      | CNY-Core | 3         |                       |  |
| CY1500            | Introduction to Research     | CNY-Core | 2         |                       |  |
| CY1601            | Mathematics I                | CNY-Core | 4         |                       |  |
| ES1001            | E2S2 Environment and Society | C        | 4         |                       |  |
|                   |                              |          | <b>20</b> |                       |  |

| YEAR 1 SEMESTER 2 |   |          |           |                       |  |
|-------------------|---|----------|-----------|-----------------------|--|
| Course Code       | Course Title  | Type     | AU        | Pre-Requisite/Remarks |  |
| CY1007            | Climate Change  | CNY-Core | 3         | CNYSB Courses         |  |
| CY1602            | Mathematics II  | CNY-Core | 4         |                       |  |
| ES1003            | E2S2 Solid Earth                                      | C        | 4         |                       |  |
| ES2003            | E2S2 Biosphere  | C        | 4         |                       |  |
| CC0002            | Navigating the Digital World                          | CC       | 2         |                       |  |
| CC0005            | Healthy Living & Mental Wellbeing in an Aging Society | CC       | 3         |                       |  |
|                   |   |          | <b>20</b> |                       |  |

| YEAR 1 SPECIAL SEMESTER |                               |          |          |                       |  |
|-------------------------|-------------------------------|----------|----------|-----------------------|--|
| Course Code             | Course Title                  | Type     | AU       | Pre-Requisite/Remarks |  |
| CY2003                  | Research Attachment 3         | CNY-Core | 4        | CNYSB Course          |  |
| ES1006                  | Introductory Field Experience | C        | 4        |                       |  |
|                         | Overseas Learning Trip        |          |          |                       |  |
|                         |                               |          | <b>8</b> |                       |  |

| YEAR 2 SEMESTER 1 |  |          |           |                       |  |
|-------------------|--|----------|-----------|-----------------------|--|
| Course Code       | Course Title   | Type     | AU        | Pre-Requisite/Remarks |  |
| CY0001            | Writing Across the Disciplines                         | CNY-Core | 3         | CNYSB Course          |  |
| ES2001            | Computational Earth Systems Science                    | C        | 4         |                       |  |
| ES2802            | GIS and the Earth System                               | C        | 3         |                       |  |
| CC0006            | Sustainability: Human, Social, Economics & Environment | CC       | 3         |                       |  |
| SP0061            | Science & Technology for Humanity                      | CC       | 3         |                       |  |
|                   |  |          | <b>16</b> |                       |  |

| YEAR 2 SEMESTER 2 |   |          |           |   |  |
|-------------------|---|----------|-----------|---|--|
| Course Code       | Course Title  | Type     | AU        | Pre-Requisite/Remarks   |  |
| CY0002            | Ethics  | CNY-Core | 3         | CNYSB Courses   |  |
| CY2001            | Research Attachment 1                                       | CNY-Core | 4         | CNYSB Course<br>2-semester long, course registered only in Sem 2 (similar to URECA) |  |
| ES0001            | Physical Environments of Singapore                          | C        | 3         |   |  |
| ES2002            | Earth Materials   | C        | 3         |   |  |
| ES2004            | Sedimentary Geology   | C        | 3         |   |  |
| ML0004            | Career and Entrepreneurial Development for the Future World | CC       | 2         |   |  |
|                   |   |          | <b>18</b> |   |  |

| YEAR 3 SEMESTER 1 |                                      |      |           |                       |  |
|-------------------|--------------------------------------|------|-----------|-----------------------|--|
| Course Code       | Course Title                         | Type | AU        | Pre-Requisite/Remarks |  |
| ES3003            | Introduction to Geochemistry         | C    | 3         |                       |  |
| XXXXXX            | Broadening and Deepening Electives 1 | BDE  | 3         |                       |  |
| XXXXXX            | Broadening and Deepening Electives 2 | BDE  | 3         |                       |  |
| XXXXXX            | Broadening and Deepening Electives 3 | BDE  | 4         |                       |  |
|                   |                                      |      | <b>13</b> |                       |  |

| YEAR 3 SEMESTER 2 |  |      |           |   |  |
|-------------------|--|------|-----------|---|--|
| Course Code       | Course Title   | Type | AU        | Pre-Requisite/Remarks   |  |
| ES3002            | Structural Geology and Tectonics   | C    | 3         |   |  |
| ES3004            | Introduction to Geophysics   | C    | 3         |   |  |
| ES0002            | Fundamentals of Data Science for Earth and Environmental Systems Science | FC   | 3         |   |  |
| CY1307            | Quantum  | BDE  | 3         | Students can choose to opt out and replace with any other BDE course (3 AU) |  |
|                   |  |      | <b>12</b> |   |  |

| YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1 |                                  |      |           |                       |  |
|---|----------------------------------|------|-----------|-----------------------|--|
| Course Code                                 | Course Title                     | Type | AU        | Pre-Requisite/Remarks |  |
| ES3005                                      | Advanced Field Course in Geology | C    | 5         |                       |  |
| ES4111                                      | Overseas Final Year Project      | C    | 12        | CNYSB Course          |  |
|   |                                  |      | <b>17</b> |                       |  |

| YEAR 4 SEMESTER 2 |                         |      |           |                       |  |
|-------------------|-------------------------|------|-----------|-----------------------|--|
| Course Code       | Course Title            | Type | AU        | Pre-Requisite/Remarks |  |
| ES4003            | Professional Internship | FC   | 10        |                       |  |
|                   |                         |      | <b>10</b> |                       |  |

Total AU for Graduation : **134**

**AY2024-25 CURRICULUM FOR ENVIRONMENTAL EARTH SYSTEMS SCIENCE (SOCIETY AND THE EARTH SYSTEM)  
WITH CN YANG SCHOLARS PROGRAMME\_Internship  
(FIRST YEAR ADMISSION)**

Last Updated : 17-Oct-24

| SUMMARY OF ACADEMIC UNIT REQUIREMENT |             |            |          |           |           |           |            |
|--------------------------------------|-------------|------------|----------|-----------|-----------|-----------|------------|
| Year of Study                        | School Core | CNYS-PCore | MPE      | CC        | FC        | BDE       | Total AU   |
| 1                                    | 16          | 27         | 0        | 5         | 0         | 0         | 48         |
| 2                                    | 13          | 10         | 0        | 8         | 0         | 3         | 34         |
| 3                                    | 15          | 0          | 0        | 0         | 3         | 12        | 30         |
| 4                                    | 12          | 0          | 0        | 0         | 10        | 0         | 22         |
| <b>Total</b>                         | <b>56</b>   | <b>37</b>  | <b>0</b> | <b>13</b> | <b>13</b> | <b>15</b> | <b>134</b> |

| YEAR 1 SEMESTER 1 |                              |          |           |                       |  |
|-------------------|------------------------------|----------|-----------|-----------------------|--|
| Course Code       | Course Title                 | Type     | AU        | Pre-Requisite/Remarks |  |
| CY1001            | Cell                         | CNY-Core | 3         | CNYS-PCore Courses    |  |
| CY1101            | Molecule                     | CNY-Core | 4         |                       |  |
| CY1308            | Physics                      | CNY-Core | 3         |                       |  |
| CY1500            | Introduction to Research     | CNY-Core | 2         |                       |  |
| CY1601            | Mathematics I                | CNY-Core | 4         |                       |  |
| ES1001            | E2S2 Environment and Society | C        | 4         |                       |  |
|                   |                              |          | <b>20</b> |                       |  |

| YEAR 1 SEMESTER 2 |   |          |           |                       |  |
|-------------------|---|----------|-----------|-----------------------|--|
| Course Code       | Course Title  | Type     | AU        | Pre-Requisite/Remarks |  |
| CY1007            | Climate Change  | CNY-Core | 3         | CNYS-PCore Courses    |  |
| CY1602            | Mathematics II  | CNY-Core | 4         |                       |  |
| ES1003            | E2S2 Solid Earth                                      | C        | 4         |                       |  |
| ES2003            | E2S2 Biosphere  | C        | 4         |                       |  |
| CC0002            | Navigating the Digital World                          | CC       | 2         |                       |  |
| CC0005            | Healthy Living & Mental Wellbeing in an Aging Society | CC       | 3         |                       |  |
|                   |   |          | <b>20</b> |                       |  |

| YEAR 1 SPECIAL SEMESTER |                               |          |          |                       |  |
|-------------------------|-------------------------------|----------|----------|-----------------------|--|
| Course Code             | Course Title                  | Type     | AU       | Pre-Requisite/Remarks |  |
| CY2003                  | Research Attachment 3         | CNY-Core | 4        | CNYS-PCore Course     |  |
| ES1006                  | Introductory Field Experience | C        | 4        | ES1001                |  |
|                         | Overseas Learning Trip        |          |          |                       |  |
|                         |                               |          | <b>8</b> |                       |  |

| YEAR 2 SEMESTER 1 |  |          |           |                       |  |
|-------------------|--|----------|-----------|-----------------------|--|
| Course Code       | Course Title   | Type     | AU        | Pre-Requisite/Remarks |  |
| CY0001            | Writing Across the Disciplines                         | CNY-Core | 3         | CNYS-PCore Course     |  |
| ES2001            | Computational Earth Systems Science                    | C        | 4         | CY1601                |  |
| ES2802            | GIS and the Earth System                               | C        | 3         |                       |  |
| CC0006            | Sustainability: Human, Social, Economics & Environment | CC       | 3         |                       |  |
| SP0061            | Science & Technology for Humanity                      | CC       | 3         |                       |  |
|                   |  |          | <b>16</b> |                       |  |

| YEAR 2 SEMESTER 2 |   |          |           |  |  |
|-------------------|---|----------|-----------|--|--|
| Course Code       | Course Title  | Type     | AU        | Pre-Requisite/Remarks  |  |
| CY0002            | Ethics  | CNY-Core | 3         | CNYS-PCore Course  |  |
| CY2001            | Research Attachment 1                                       | CNY-Core | 4         | CNYS-PCore Course<br>2-semester long, course registered only in Sem 2 (similar to URECA) |  |
| ES2203            | Global Environmental Politics and Governance                | C        | 3         | ES1001, ES2003   |  |
| ES2303            | Introduction to Ecology                                     | C        | 3         | CY1001, ES2003   |  |
| ML0004            | Career and Entrepreneurial Development for the Future World | CC       | 2         |  |  |
| CY1307            | Quantum   | BDE      | 3         | Students can choose to opt out and replace with any other BDE course (3 AU)              |  |
|                   |   |          | <b>18</b> |  |  |

| YEAR 3 SEMESTER 1 |  |      |           |                       |  |
|-------------------|--|------|-----------|-----------------------|--|
| Course Code       | Course Title                               | Type | AU        | Pre-Requisite/Remarks |  |
| ES3202            | Resilient Urban Systems                    | C    | 3         | ES2802                |  |
| MH2500            | Probability and Introduction to Statistics | BDE  | 4         | CY1601                |  |
| HE5091            | Principles of Economics                    | C    | 3         |                       |  |
| XXXXXX            | Broadening and Deepening Electives 1       | BDE  | 3         |                       |  |
| XXXXXX            | Broadening and Deepening Electives 2       | BDE  | 3         |                       |  |
|                   |  |      | <b>16</b> |                       |  |

| YEAR 3 SEMESTER 2 |  |      |           |                       |  |
|-------------------|--|------|-----------|-----------------------|--|
| Course Code       | Course Title   | Type | AU        | Pre-Requisite/Remarks |  |
| ES0001            | Physical Environments of Singapore                                       | C    | 3         |                       |  |
| ES3201            | Coupled Human and Natural Systems  | C    | 3         | ES1001                |  |
| ES0002            | Fundamentals of Data Science for Earth and Environmental Systems Science | FC   | 3         | CY1601, ES2001        |  |
| MH3511            | Data Analysis with Computer  | C    | 3         | MH2500/BS1008         |  |
| XXXXXX            | Broadening and Deepening Electives 3                                     | BDE  | 2         |                       |  |
|                   |  |      | <b>14</b> |                       |  |

| YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1 |                             |      |           |                       |  |
|---|-----------------------------|------|-----------|-----------------------|--|
| Course Code                                 | Course Title                | Type | AU        | Pre-Requisite/Remarks |  |
| ES4111                                      | Overseas Final Year Project | C    | 12        | CNYS-PCore Course     |  |
|   |                             |      | <b>12</b> |                       |  |

| YEAR 4 SEMESTER 2 |                         |      |           |                       |  |
|-------------------|-------------------------|------|-----------|-----------------------|--|
| Course Code       | Course Title            | Type | AU        | Pre-Requisite/Remarks |  |
| ES4003            | Professional Internship | FC   | 10        |                       |  |
|                   |                         |      | <b>10</b> |                       |  |

Total AU for Graduation : **134**