



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

جامعة العلمين الدولية  
ALALAMEIN  
INTERNATIONAL UNIVERSITY**Molecular Biotechnology Program**

برنامج التكنولوجيا الحيوية الجزيئية

**Study Plan**

الخطة الدراسية

| Semester | Code   | Course Name                                    | LCT | LAB | TUT | OTH | CNTCT | CH | SWL | ECTS |
|----------|--------|------------------------------------------------|-----|-----|-----|-----|-------|----|-----|------|
| 1        | GES111 | Physical Geology                               | 2   | 2   | 1   | 0   | 5     | 3  | 165 | 6    |
|          | BIO131 | Biology I                                      | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | CHE111 | Organic Chemistry                              | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | PHY111 | Physics I                                      | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | MAT111 | Mathematics I                                  | 3   | 0   | 1   | 0   | 4     | 3  | 150 | 6    |
|          | UC1    | University Requirement (1)                     | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          |        |                                                |     |     |     |     | 23    | 17 | 840 | 34   |
| 2        | CHE141 | Physical Chemistry                             | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | MAT112 | Mathematics II                                 | 3   | 0   | 1   | 0   | 4     | 3  | 150 | 6    |
|          | MAT131 | Probability and Statistics I                   | 2   | 1   | 2   | 0   | 5     | 3  | 150 | 6    |
|          | UC2    | University Requirement (2)                     | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          | UC3    | University Requirement (3)                     | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          | UC4    | University Requirement (4)                     | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          | UE1    | Elective University (1)                        | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          |        |                                                |     |     |     |     | 21    | 17 | 855 | 34   |
| 3        | BIO241 | Biology II                                     | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | CHE221 | Inorganic Chemistry                            | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | PHY211 | Physics II                                     | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | BIO119 | Laboratory Safety and good laboratory practice | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |



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| Semester | Code   | Course Name                            | LCT | LAB | TUT | OTH | CNTCT | CH | SWL | ECTS |
|----------|--------|----------------------------------------|-----|-----|-----|-----|-------|----|-----|------|
|          |        | (Biology)                              |     |     |     |     |       |    |     |      |
|          | E1     | Elective Course (1)                    | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | UC5    | University Requirement (5)             | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          |        |                                        |     |     |     |     | 21    | 16 | 795 | 32   |
| 4        | CSE014 | Structure Programming                  | 2   | 3   | 0   | 0   | 5     | 3  | 150 | 6    |
|          | BIO317 | Introduction to biotechnology          | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | E2     | Elective Course (2)                    | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | E3     | Elective Course (3)                    | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | E4     | Elective Course (4)                    | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | UC6    | University Requirement (6)             | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          | UE2    | Elective University (2)                | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          |        |                                        |     |     |     |     | 23    | 17 | 840 | 38   |
| 5        | BIO318 | Bioinformatics                         | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | BIO221 | Molecular Biology I                    | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | BIO321 | Microbial biotechnology                | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | E5     | Elective Course (5)                    | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | E6     | Elective Course (6)                    | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | BIO433 | Cell culture principles and techniques | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | UC7    | University Requirement (7)             | 2   | 0   | 0   | 0   | 2     | 2  | 90  | 4    |
|          |        |                                        |     |     |     |     | 22    | 16 | 810 | 32   |
| 6        | BIO311 | Molecular Biology II                   | 2   | 2   | 0   | 0   | 4     | 3  | 150 | 6    |
|          | BIO324 | Plant biotechnology                    | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | ENV311 | Environmental biotechnology            | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | E8     | Elective Course (8)                    | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |
|          | E9     | Elective Course (9)                    | 1   | 2   | 0   | 0   | 3     | 2  | 105 | 4    |



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| Semester | Code   | Course Name                       | LCT | LAB | TUT | OTH | CNTCT | CH  | SWL  | ECTS |
|----------|--------|-----------------------------------|-----|-----|-----|-----|-------|-----|------|------|
|          | E10    | Elective Course (10)              | 2   | 0   | 0   | 0   | 2     | 2   | 105  | 4    |
|          | UE3    | Elective University (3)           | 2   | 0   | 0   | 0   | 2     | 2   | 90   | 4    |
|          |        |                                   |     |     |     |     | 20    | 15  | 765  | 30   |
| 7        | BIO418 | Molecular genetics                | 2   | 2   | 0   | 0   | 4     | 3   | 150  | 6    |
|          | BIO420 | Genetic engineering               | 2   | 2   | 0   | 0   | 4     | 3   | 150  | 6    |
|          | BIO425 | Molecular immunology              | 2   | 2   | 0   | 0   | 4     | 3   | 150  | 6    |
|          | BIO426 | Stem cell biology                 | 1   | 2   | 0   | 0   | 3     | 2   | 105  | 4    |
|          | BIO427 | Computational biochemistry        | 1   | 2   | 0   | 0   | 3     | 2   | 105  | 4    |
|          | BIO428 | Practical Training and Internship | 2   | 4   | 0   | 0   | 6     | 4   | 210  | 8    |
|          |        |                                   |     |     |     |     | 24    | 17  | 870  | 34   |
| 8        | BIO429 | Nano-Biotechnology                | 2   | 2   | 0   | 0   | 4     | 3   | 150  | 6    |
|          | BIO419 | Graduation Project                | 2   | 4   | 0   | 0   | 6     | 4   | 210  | 8    |
|          | BIO431 | Recombinant DNA technology        | 2   | 2   | 0   | 0   | 4     | 3   | 150  | 6    |
|          | BIO432 | Industrial biotechnology          | 1   | 2   | 0   | 0   | 3     | 2   | 105  | 4    |
|          | BIO435 | Animal biotechnology              | 1   | 2   | 0   | 0   | 3     | 2   | 105  | 4    |
|          | E7     | Elective Course (7)               | 2   | 2   | 0   | 0   | 4     | 3   | 150  | 6    |
|          |        |                                   |     |     |     |     | 24    | 17  | 870  | 34   |
|          |        |                                   |     |     |     |     | 178   | 132 | 6645 | 274  |



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### Elective (E1, E2)

|        |                             |
|--------|-----------------------------|
| BIO132 | Developmental Biology       |
| ENV111 | Environmental Biology       |
| PHY221 | Introduction to Nanoscience |
| PHY281 | Biophysics                  |

### Elective (E3, E4, E5, E10)

|        |                                     |
|--------|-------------------------------------|
| BIO231 | Vertebrates                         |
| BIO242 | Paleobotany                         |
| BIO319 | Journal club                        |
| ENV211 | Principles of Ecology               |
| CHE231 | Quality control                     |
| CHE241 | Renewable energy and sustainability |
| CHE318 | Scientific writing                  |

### Elective (E6, E8, E9)

|        |                                         |
|--------|-----------------------------------------|
| BIO320 | Gene therapy                            |
| BIO322 | Cellular structure & cell communication |
| BIO323 | Bio-farming                             |
| BIO436 | Transgenics                             |

### Elective (E7)

|        |                                                |
|--------|------------------------------------------------|
| BIO430 | Tissue engineering                             |
| BIO434 | Biotechnological applications in food industry |
| CHE425 | Molecular modeling and simulation              |
| CHE433 | Nanoscale sensors and biosensors               |
| BIO495 | Special Topic                                  |