



| No. |                              | SUBJECT  | Number of teaching hours | ECTS | Form of receiving a credit |
|-----|------------------------------|--|--------------------------|------|----------------------------|
| 1   | <b>COMPUTER ASTROPHYSICS</b> | Astrophysics I   | 45                       | 6    | E c/m                      |
| 2   |                              | Astrophysics II  | 60                       | 6    | E c/m                      |
| 3   |                              | Extragalactic astronomy and cosmology                  | 30                       | 4    | c/m c/m                    |
| 4   |                              | Astrophysics of compact objects                        | 45                       | 6    | E c/m                      |
| 5   |                              | Modern radioastronomy                                  | 30                       | 2    | c/m                        |
| 6   |                              | High-energy astrophysics                               | 30                       | 2    | E                          |
| 7   |                              | Radiative processes in astrophysics                    | 75                       | 5    | E c/m                      |
| 1   | <b>MEDICAL PHYSICS</b>       | Dosimetry and quality control in medical physics       | 45                       | 6    | E c/m                      |
| 2   |                              | Packages for statistical analysis                      | 30                       | 3    | c/m                        |
| 3   |                              | Medical image analysis algorithms                      | 60                       | 7    | E c/m                      |
| 4   |                              | Mathematical methods in biophysics and medical physics | 45                       | 5    | c/m c/m                    |
| 5   |                              | Elements of bioinformatics                             | 45                       | 4    | E c/m                      |
| 6   |                              | Physics of fluids in biology and medicine              | 60                       | 4    | E c/m                      |
| 7   |                              | Elements of microbiology                               | 30                       | 2    | c/m                        |

| Semester 1          |    |   |     |                            |      |                     | Semester 2 |   |     |                            |      | Semester 3          |   |   |     |                            | Semester 4 |                     |    |   |     |                            |      |
|---------------------|----|---|-----|----------------------------|------|---------------------|------------|---|-----|----------------------------|------|---------------------|---|---|-----|----------------------------|------------|---------------------|----|---|-----|----------------------------|------|
| Form of instruction |    |   |     | Form of receiving a credit | ECTS | Form of instruction |            |   |     | Form of receiving a credit | ECTS | Form of instruction |   |   |     | Form of receiving a credit | ECTS       | Form of instruction |    |   |     | Form of receiving a credit | ECTS |
| L                   | T  | D | L/S |                            |      | L                   | T          | D | L/S |                            |      | L                   | T | D | L/S |                            |            | L                   | T  | D | L/S |                            |      |
| 15                  | 30 |   |     | E c/m                      | 6    |                     |            |   |     |                            |      |                     |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      | 30                  | 30         |   |     | E c/m                      | 6    |                     |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      | 15                  | 15         |   |     | c/m c/m                    | 4    |                     |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      |                     |            |   |     |                            |      |                     |   |   |     |                            |            | 15                  | 30 |   |     | E c/m                      | 6    |
|                     |    |   |     |                            |      |                     |            |   |     |                            |      | 30                  |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      |                     |            |   |     |                            |      | 30                  |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      | 30                  | 45         |   |     | E c/m                      | 5    |                     |   |   |     |                            |            |                     |    |   |     |                            |      |
| 15                  |    |   | 30  | E c/m                      | 6    |                     |            |   |     |                            |      |                     |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      |                     |            |   | 30  | c/m                        | 3    |                     |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      | 30                  |            |   | 30  | E c/m                      | 7    |                     |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      | 15                  | 30         |   |     | c/m c/m                    | 5    |                     |   |   |     |                            |            |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      |                     |            |   |     |                            |      | 15                  |   |   | 30  | E c/m                      | 4          |                     |    |   |     |                            |      |
|                     |    |   |     |                            |      |                     |            |   |     |                            |      |                     |   |   |     |                            |            | 30                  |    |   | 30  | E c/m                      | 4    |
|                     |    |   |     |                            |      |                     |            |   |     |                            |      |                     |   |   |     |                            |            | 30                  |    |   |     | c/m                        | 2    |

|                                     |             |            |
|-------------------------------------|-------------|------------|
| Common subjects                     | 735         | 89         |
| Speciality 1: COMPUTER PHYSICS      | 345         | 31         |
| Speciality 2: THEORETICAL PHYSICS   | 345         | 31         |
| Speciality 2: COMPUTER ASTROPHYSICS | 315         | 31         |
| Speciality 4: MEDICAL PHYSICS       | 315         | 31         |
| Practice                            |             |            |
| <b>SumCOMPUTER PHYSICS</b>          | <b>1080</b> | <b>120</b> |
| <b>SumTHEORETICAL PHYSICS</b>       | <b>1080</b> | <b>120</b> |
| <b>SumCOMPUTER ASTROPHYSICS</b>     | <b>1050</b> | <b>120</b> |
| <b>SumMEDICAL PHYSICS</b>           | <b>1050</b> | <b>120</b> |

**Sum without Practice**

|                       |             |            |
|-----------------------|-------------|------------|
| COMPUTER PHYSICS      | <b>1050</b> | <b>120</b> |
| THEORETICAL PHYSICS   | <b>1080</b> | <b>120</b> |
| COMPUTER ASTROPHYSICS | <b>1050</b> | <b>120</b> |
| MEDICAL PHYSICS       | <b>1050</b> | <b>120</b> |

|            |
|------------|
| 270        |
| 60         |
| 60         |
| 45         |
| 45         |
| <b>330</b> |
| <b>330</b> |
| <b>315</b> |
| <b>315</b> |

|           |            |
|-----------|------------|
| 24        | 135        |
| 6         | 165        |
| 6         | 135        |
| 6         | 165        |
| 6         | 135        |
| <b>30</b> | <b>300</b> |
| <b>30</b> | <b>270</b> |
| <b>30</b> | <b>300</b> |
| <b>30</b> | <b>270</b> |

|           |            |
|-----------|------------|
| 15        | 240        |
| 15        | 60         |
| 15        | 60         |
| 15        | 60         |
| 15        | 45         |
| <b>30</b> | <b>300</b> |
| <b>30</b> | <b>300</b> |
| <b>30</b> | <b>300</b> |
| <b>30</b> | <b>285</b> |

|           |            |
|-----------|------------|
| 26        | 90         |
| 4         | 60         |
| 4         | 90         |
| 4         | 45         |
| 4         | 90         |
| <b>30</b> | <b>150</b> |
| <b>30</b> | <b>180</b> |
| <b>30</b> | <b>135</b> |
| <b>30</b> | <b>180</b> |

|           |
|-----------|
| 24        |
| 6         |
| 6         |
| 6         |
| 6         |
| <b>30</b> |
| <b>30</b> |
| <b>30</b> |
| <b>30</b> |

Plan studiów został zatwierdzony na Radzie Wydziału dnia 26 marca 2019 roku

Blue color: all selective courses, \* - common selective courses, \*\*\* - common selective courses within speciality

English, Graduate seminar I, II, General seminar- credit and mark

Selective subject in the field of humanities\*: Philosophy of nature / Humanistic subject

Selective social science subject\*: Elements of economics / Social subject

Lectures:Elementary particle physics- credit and mark

Lectures:Extragalactic astronomy and cosmology- credit and mark

Lectures:Mathematical methods in biophysics and medical physics- credit and mark