

## Subject card

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| Subject name and code                       | The Basics of Organic Chemistry for Oceanographers - lecture, PG_00205320                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                          |                                                                            |                                     |                                                |            |     |
| Field of study                              | Oceanography                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                          |                                                                            |                                     |                                                |            |     |
| Date of commencement of studies             | October 2026                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                          | Academic year of realisation of subject                                    |                                     | 2027/2028                                      |            |     |
| Education level                             | Bachelor's studies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                          | Subject group                                                              |                                     | Obligatory subject group in the field of study |            |     |
| Mode of study                               | full-time studies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                          | Mode of delivery                                                           |                                     | at the university                              |            |     |
| Year of study                               | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                          | Language of instruction                                                    |                                     | Polish                                         |            |     |
| Semester of study                           | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                          | ECTS credits                                                               |                                     | 1.0                                            |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                          | Assessment form                                                            |                                     | credit                                         |            |     |
| Conducting unit                             | Laboratory of Toxic Substances Transformation -> Department of Chemical Oceanography and Marine Geology -> Faculty of Oceanography and Geography -> Rector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                          |                                                                            |                                     |                                                |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                          | dr hab. inż. Marta Staniszevska, prof. UG                                  |                                     |                                                |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                          |                                                                            |                                     |                                                |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Lecture                                                  | Tutorial                                                                   | Laboratory                          | Project                                        | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15.0                                                     | 0.0                                                                        | 0.0                                 | 0.0                                            | 0.0        | 15  |
|                                             | E-learning hours included: 0.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          |                                                                            |                                     |                                                |            |     |
| Learning activity and number of study hours | Learning activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Participation in didactic classes included in study plan |                                                                            | Participation in consultation hours |                                                | Self-study | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15                                                       |                                                                            | 1.0                                 |                                                | 9.0        | 25  |
| Subject objectives                          | To familiarize the student with basic knowledge in the field of organic chemistry.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                          |                                                                            |                                     |                                                |            |     |
| Learning outcomes                           | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          | Subject outcome                                                            |                                     | Method of verification                         |            |     |
|                                             | [OCEANL3-U01] is able to use the current scientific terminology in the field of oceanography in various forms of expression                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          | is able to use current terminology in the field of organic chemistry       |                                     | [SU4] test/exam - oral or written              |            |     |
|                                             | [OCEANL3-W01] has an advanced knowledge and understanding of the terminology used in oceanography and related exact and natural sciences (in Polish and a selected foreign language)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                          | knows and understands specialized terminology related to organic chemistry |                                     | [SW4] test/exam - oral or written              |            |     |
| Subject contents                            | A.1 Structure of the carbon atom, hybridization of the carbon atom, chemical bonds in organic compounds, intermolecular interactions in organic compounds.A.2 Classification of organic compounds. Structure, nomenclature, properties, origin, homologous series, isomerism of basic groups of organic compounds: carbon and hydrogen compounds: hydrocarbons; hydrocarbon derivatives: compounds containing oxygen, halogen, others: compounds containing nitrogen, multifunctional compounds. Concepts: saturated/unsaturated, acyclic/cyclic, non-aromatic/aromatic compounds.A.3 The importance of selected compounds and/or organic groups for the environment, including: hydrocarbons (benzene and its derivatives, crude oil, polycyclic aromatic compounds), volatile organohalogen compounds (trihalomethanes, freons, halons), organometallic compounds.A.4 Cycle of selected organic compounds in the marine environment (atmosphere, water, sediment, organisms). Environmental factors influencing the distribution of selected organic compounds in the sea. |                                                          |                                                                            |                                     |                                                |            |     |

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| Prerequisites and co-requisites                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                              |                               |
| Assessment methods and criteria                                | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Passing threshold                                                                                                                                                                                                            | Percentage of the final grade |
|                                                                | written test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 51.0%                                                                                                                                                                                                                        | 100.0%                        |
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1. Morrison T.R., Boyd N.R., Organic Chemistry, PWN Warsaw 1994.2. Mastalerz P., Textbook of organic chemistry, Wydawnictwo Chemiczne, Wrocław 1996.3. Kupryszewski G., Introduction to organic chemistry, PWN, 1979, Warsaw |                               |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -                                                                                                                                                                                                                            |                               |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                              |                               |
| Example issues/<br>example questions/<br>tasks being completed | Ile wiązań może maksymalnie utworzyć atom węgla ? Wskaż wiązania kowalencyjne, kowalencyjne-spolaryzowane, jonowe w związkach organicznych. Dlaczego alkohole ulegają asocjacji ? Co to są węglowodory pirogenne, a co to petrogenne? Podaj źródła ropy naftowej w morzu. Co to są klatraty metanu. Zdefiniuj węglowodory nasycone, nienasycone, cykliczne, acykliczne, aromatyczne. Jak budowa związku, obecność grup funkcyjnych wpływają na właściwości głównych grup związków organicznych. Jak zmienia się właściwości alkoholi w zależności od długości łańcucha. Wyjaśnij pojęcie hydrofobowy i hydrofilowy - podaj przykłady związków. Zdefiniuj pojęcie polimer i tworzywo sztuczne. Zagrożenie dla środowiska morskiego odpadami z tworzyw sztucznych. |                                                                                                                                                                                                                              |                               |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                              |                               |

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