

Detailed curriculum for the course:

Introduction to the scientific method

Academic year:	2025/2026
Program:	Master programs „Drug Research and Design", "Biotechnology in Medicine" "Medical Chemistry" and „The Biotechnology for the Life Sciences “
Code:	IRL202/BLS101
ECTS points:	5
Language of the course:	English
Teaching hours:	31L+6S+13V

Pre-requisite for the enrollment: None

Course leader and contact information: Assoc.prof. Rozi Andretić Waldowski (11L + 14S + 2E)

Address: University of Rijeka, FABRI, Radmile Matejčić, tel: 584 553 e-mail: randretic@uniri.hr

Contact hours: Course leader is at the disposal for consultations any time during the working hours, with previous appointment.

Teaching staff: Assist. Prof. Rozi Andretić Waldowski (19L+6S+6E)

Assist.Prof. Christian Raynolds (4L+3E)

Assoc.Prof. Nicholas Bradshaw (2L + 2X2E)

Prof. Antonija Jurak Begonja (1L + 2X2E)

Assit. Prof. Stribor Marković (3L)

Dr.sc. Pegi Pavletić (2L)

Required reading:

1. Required reading materials will be supplied during the class

Suggested reading

1. Vanja Pupovac: “Akademsko pisanje“, <http://akademsko-pisanje.sz-ri.com>
2. Matko Marušić i suradnici: Uvod u Znanstveni rad u medicini, Medicinska Naklada, Zagreb, 2013.

3. Kevin W. Plaxco: The Art of Writing Science, PROTEIN SCIENCE 2010 VOL 19:2261—2266
4. Introduction to Journal-style Scientific Writing,
<http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWgeneral.html>
5. Mimi Zeiger: Essentials of Writing Biomedical Research Papers, 2nd edition, McGraw Hill, 2000.

Course Description:

This course will provide students with the fundamental knowledge necessary for their future work in research laboratories, including how to plan a hypothesis-driven research work based on published scientific literature and developing skills in communicating science to both and laypeople.

Emphasis will be on acquiring practical skills in acquiring scientific style of writing that they will later use to write Master thesis. During the course, students will learn the basic concepts about writing a research paper, project proposal, and science outreach article and skills for preparing poster and oral presentation. Students will learn the steps preceding the writing, such as using different literature databases to find relevant scientific papers and using the reference management software to organize and list bibliography. In addition, students will be guided in the skill of writing a CV and a motivational letter. An important part of this course will be education about ethical behavior in research and communication of science, with a special emphasis on the ethical use of Artificial Intelligence platforms in research and writing.

Learning outcomes:

1. Form an opinion on the use of appropriate scientific methodology
2. Critically judge the quality of scientific publications
3. Support the importance of bioethics in the implementation of the scientific approach
4. Self-evaluate the quality of scientific writing
5. Support the importance of clear, audience-friendly scientific communication

Detailed course content:**A. Lectures: 31 hours**

Introduction to scientific writing	4h/C.R.
Experimental design	4h / R.A.W.
Foundations of a scientific method	2h / R.A.W.
Critical reading of scientific papers	2h / R.A.W.
Bioethics in research and writing	2h / R.A.W.
Ethical use of AI	2h / P.P.
Literature search and publishing	3h / N.B.
Writing a scientific paper	4h / R.A.W.
Communicating science	4h / R.A.W.
Editing, revising and planning	4h / R.A.W.

B. Seminars: 6 hours

Critical reading of scientific papers 3h / R.A.W.
Communicating science 3h / R.A.W.

C. Exercises: 13 hours

Introduction to scientific writing 4h/C.R.
Writing a motivational letter and CV 2h/A.J.B.
Literature search 1h/N.B.
Writing a scientific paper 6h/R.A.W.

Schedule of classes:

DATE	GROUP	TIME	HRS IN CLASS	ROOM	CONTENT	LECTURER
02.10.2025.	all	13:00-16:30	4L	030	Introduction to scientific writing	Reynolds
03.10.2025.	all	13:00-16:00	3E	030	Introduction to scientific writing	Reynolds
06.10.2025.	all	13:00-16:30	4L	030	Experimental design	Andretić Waldowski
07.10.2025.	all	13:00-18:00	4L	030	Foundations of the scientific method Critical reading of scientific papers	Andretić Waldowski
08.10.2025.	all	14:30-18:30	2L 2L	030	Bioethics in research and publishing Ethical use of AI	Andretić Waldowski Pavlečić
09.10.2025.	All Gr.1 Gr.2	13:00-14:30 14.30-16:00 16:00-17:30	2L 2E 2E	030 339 339	Literature search and publishing	Bradshaw

10.10.2025.	all	13:00-16:30	4L	030	Writing a science paper MIDTERM	Andretić Waldowski
13.10.2025.	all	13:00-16:30	3S 2E	030	Critical reading of scientific papers Writing a scientific paper	Andretić Waldowski
14.10.2025.	all	13:00-16:30	4E	030	Writing a science paper	Andretić Waldowski
15.10.2024.	all	13:00-17:30	4L	030	Communicating science Editing, revising and planning	Andretić Waldowski
17.10.2024.	all	13:00-16:30	3S	030	Communicating science	Andretić Waldowski
20.10.2024.	All Gr.1 Gr.2	13:00-13:45 14:00-15:30 15:30-17:00	1L 2E 2E	030 339 339	Writing a motivational letter and CV	Jurak Begonja
21.10.2025.	all	13:00-16:30	3L	030	Methodology in drug research	Marković
22.10.2024.	all	11:00-13:00		030	FINAL EXAM	Andretić Waldowski

Required student's engagement and scoring:

Classes are organized as a combination of lectures, exercises and seminars. Knowledge will be continuously assessed through evaluations of seminar work, activity during exercise session and lectures, and homework. Some seminars and exercises will be organized in pairs or small groups to increase group collaboration and ensure the development of practical skills.

Examination deadlines:

The final exam will be on Monday 22th of October 2025.

A second test date will be on Monday 10th of November 2025.

Additional test deadlines (maximum two, between January and June) will be arranged with students if needed.

Qualification and grades (according to Pravilnik o studijima Sveučilišta u Rijeci):

Students will be graded continuously during the class for their participation, activity and quality of their work assignments during the course (max 70% of the grade) and for the grade on the final exam (max 30% of the grade). Students must attain a minimum of 35% of the grade during the continuous grading to be allowed to take the final exam.

Continuous grading (70%) consists of the following elements:

Homework (max 30 points) – three assignments with topics on writing a scientific abstract, formulating the title of a figure legend and writing the legend and writing the description of the results.

Midterm (max 20 points) – questions covering the material covered in the first week of class in the form of short answers.

Activity during class (max 20 points) – expressing opinions about reading materials ahead of class or providing answers when questioned.

Final exam (30%)

The final exam will consist of problem-solving and essay questions.

Final grades:

The final grade is based on the percentage points attained during the continuous grading and on the final exam. The following grades will be awarded based on the sum of achieved scores:

Percentage score	ECTS grade	Numerical grade
90% to 100%	A	Excellent (5)
75% to 89.9%	B	Very good (4)
60% to 74.9%	C	Good (3)
50% to 59.9%	D	Satisfactory (2)
0% to 49.9%	F	Unsatisfactory (1)

Passing grades are excellent (5), very good (4), good (3) and satisfactory (2).

Academic integrity:

During the class and the exam, students are expected to behave according to the highest standards of integrity and ethical behavior some of which will be discussed in this class. In addition, students can refer to the documents: Etički kodeks Sveučilišta u Rijeci and Etički kodeks za studente.

During classes, students are expected to show fairness in interactions, respect for each other's effort, and fair acknowledgment of the contributions of others. In their homework assignments, students should strictly avoid any form of plagiarism, should properly cite sources they have used for their work, and should present data truthfully. Academic dishonesty, such as presenting the work of others as the student's own, use of AI-generated content without proper acknowledgment, and material produced

in collaboration with others (unless explicitly permitted), will be punished by no grade for the given assignment and the breach of ethical conduct will be reported to the Ethical Committee of the FABRI.

Questionnaire at the end of the class:

All students are requested to fill out the questionnaire about their satisfaction with the content of the course and the course leader **to improve the future quality of the course**. Valuation is anonymous and is done using ISVU system with the „Studomat“ application. The questionnaire is defined at the level of the University.