NAVOIY STATE UNIVERSITY

ACADEMIC COURSE SYLLABUS
METHODS OF TEACHING SPECIAL SUBJECTS IN ECOLOGY

Field of Knowledge: 500000 – Natural Sciences, Mathematics and Statistics
Field of Education: 520000 – Environment
Specialty: 70520202 – Ecology (Master's Degree Program)

1. Course General Information & Parameters

Course Title:	Methods of Teaching Special Subjects
Course Code & Order No:	MFOM1106 / 70510101-1.02
Academic Year & Semester:	2026–2027 / 1st Semester (Master's Level)
ECTS Credits & Type:	6 Credits / Mandatory Course
Language & Weekly Load:	Uzbek / 6 hours per week
Total Workload:	180 Hours Total
Auditorium Hours:	90 Hours (Lectures: 44 hrs, Seminars: 46 hrs)
Independent Study:	90 Hours
Aligned UN SDGs:	SDG 4, SDG 13, SDG 15, SDG 12, SDG 17



2. Alignment with UN Sustainable Development Goals (SDGs)

This course directly contributes to achieving the United Nations Sustainable Development Goals (SDGs) by embedding environmental awareness, modern pedagogical tools, and sustainable governance into higher education curricula:

SDG 4: Quality Education – Enhances the quality, continuity, and inclusivity of environmental education in continuous education systems; prepares highly qualified academic faculty utilizing modern pedagogical, digital, and international assessment standards (PISA, TIMSS).

SDG 13: Climate Action – Integrates climate change awareness, environmental protection strategies, and ecological vulnerability into higher education teaching methodologies to build climate resilience.

SDG 15: Life on Land – Promotes environmental stewardship, terrestrial ecosystem protection, bioecology conservation, and sustainable land management through structured academic courses.

SDG 12: Responsible Consumption and Production – Incorporates waste management, resource efficiency, and circular economy principles into undergraduate environmental curricula.

SDG 17: Partnerships for the Goals – Fosters interdisciplinary research, international pedagogical collaborations (STEAM, top-300 university frameworks), and multi-stakeholder educational projects.

3. Course Goal, Objectives & Prerequisites

Course Goal: The primary goal of teaching this course is to equip Master's students with the theoretical and practical foundations of teaching ecological and biological disciplines in higher education institutions, lesson classification structures, advanced educational technologies, and interactive teaching methodologies.

Course Tasks: To prepare qualified educators for professional vocational colleges and higher education institutions; to foster essential pedagogical competencies for implementing continuity and consistency in environmental education; and to enable master's students to master pedagogical research methods in light of modern scientific and technological advancement.

Prerequisites: 1. (BOM15608) Biology Teaching Methodology
2. (BOMII1706) Biology Teaching Methodology II
3. (BMvMY1704) Solving Problems and Exercises in Biology

4. Expected Learning Outcomes (LO)

Professional Competencies:

LO1: Understands current approaches, trends, standards, continuity, and structural integration of methods, tools, and content in environmental education within continuous education systems.

LO2: Comprehends methods for processing, synthesizing, and delivering ecological information effectively to university-level students.

LO3: Masters scientific research techniques in ecology teaching methodology and understands the components of professional and methodological readiness for future ecology educators.

LO4: Grasps systemic approaches to ecology instruction, as well as strategies for planning and executing extracurricular and out-of-class educational activities.

Practical & Pedagogical Skills:

LO5: Ability to organize and guide students' cognitive activities during lectures, practicals, and seminars in higher education, as well as organizing independent student research.

LO6: Proficiency in integrating modern pedagogical and digital information technologies to modernize ecological education in higher education institutions.

LO7: Ability to implement continuity in environmental education, recognizing urgent ecological issues and modernization trends in specialized educational institutions.

LO8: Mastery of theoretical and practical teaching foundations required for training vocational college and higher education faculty in an era of rapid scientific progress.

5. Distribution of Study Hours by Teaching Modules

Module / Structure	Lectures (hrs)	Seminars (hrs)	Independent Study (hrs)
Module I: Continuous Environmental Education Systems	6	6	10
Module II: Secondary & Specialized Secondary Education	6	6	10
Module III: Academic Lyceums & Vocational Education	6	6	10
Module IV: Higher Education & SES Frameworks	8	8	15
Module V: Active Methods, Syllabi & Instructional Media	10	12	20
Module VI: Independent Study & AI/Digital Technologies	4	4	15
Module VII: Assessment, PISA/TIMSS & Pedagogical Tools	4	4	10

Workload Summary: • Lectures Total: 44 hours (22 instructional units × 2 hours)
• Seminars / Workshops Total: 46 hours (23 practical units × 2 hours)
• Independent Study Assignments Total: 90 hours (9 major analytical tasks × 10 hours)
• Total Course Workload: 180 hours (6 ECTS Credits)

6. Teaching Technologies and Methodologies

Lectures; Practical and laboratory tasks with conclusions; Case-study analysis; Group work and discussion; Brainstorming; Presentation delivery; Team-based project execution.

7. Assessment Criteria & Grading Scale

• Grade '5' (Excellent / 90–100%): Complete mastery of course essence; scientifically and logically sound presentation without errors; clear understanding of theoretical/practical significance; strong independent thinking; precise answers; complete assignment completion.

• Grade '4' (Good / 70–89.9%): Clear understanding of course concepts; absence of scientific errors; good comprehension of practical application; successful completion of curriculum tasks and questions.

• Grade '3' (Satisfactory / 60–69.9%): General conceptual understanding; narrower scope with occasional confusion; complete execution of independent tasks; less fluent explanations.

• Grade '2' (Unsatisfactory / 0–59.9%): Unprepared for classes; lack of basic concepts; incomplete independent tasks; plagiarized texts or severe scientific inaccuracies.

8. Recommended Literature & Information Sources

Primary Literature:

1. Shamsidinova G.D. 'Methods of Teaching Special Subjects' (Maxsus fanlarni o'qitish metodikasi). Textbook for Master's students. Navoiy, 2022.

2. G'ofurov A.T., Tolipova J.O. Biology Teaching Methodology. Textbook for Pedagogical HEIs. Tashkent, 'Moliya-Iqtisod', 2008.

3. *Steven J. Osterlind. Multiple-Choice & Constructed-Response Item Formats, 2004.

4. *Jumabayeva J. Teaching methods of special subjects. Tashkent, 2019.

5. *Dr. Mahmoud M.S. TESOL-TEFL for students with special needs, 2015.

Supplementary Literature:

6. Azimov I. et al. Biology (Grade 9) Methodological Guide. Tashkent, Abu Ali Ibn Sino Medical Publishing, 2002.

7. Tolipova J.O., G'ofurov A.T. Biology Teaching Methodology (Guide for lyceum/college teachers). Tashkent, Bilim, 2004.

8. *Paul Kim, Reuben Thiessen, Wilson Wang. SMILE (Stanford Mobile Inquiry-based Learning Environment), 2002.

9. *Carl Wieman et al. Integrating Inquiry Based Teaching with Faculty Research, 2018.

10. Tolipova J.O. et al. Botany Teaching Methodology (Grades 5–6). Tashkent, O'zbekiston, 2003.

11. Tolipova J.O., G'ofurov A.T. General Biology Teaching Methodology (Grade 10). Tashkent, Sharq, 2004.

12. Tolipova J.O., G'ofurov A.T. Technologies of Biology Education. Methodological Guide. Tashkent, O'qituvchi, 2002.

Information & Web Resources:

• www.tdpu.uz | www.pedagog.uz | www.ziyonet.uz | www.allbooks.ru

Note: *Note: Asterisk (*) indicates topics and literature modernized based on top-300 international university programs.*