МИНОБРНАУКИ РОССИИ

Федеральное государственное автономное образовательное учреждение высшего образования "Пермский государственный национальный исследовательский университет"

Кафедра биогеоценологии и охраны природы

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Программа учебной практики

ACADEMIC PRACTICE IN NATURE CONSERVATION

Код УМК 95380

Утверждено
Протокол №8
от «17» мая 2021 г.

Пермь, 2021

1. Вид практики, способ и форма проведения практики

Вид практики **учебная**
Тип практики **практика по получению первичных профессиональных умений и навыков**
Способ проведения практики **стационарная, выездная**
Форма (формы) проведения практики **дискретная**

2. Место практики в структуре образовательной программы

Учебная практика « Academic practice in Nature conservation » входит в обязательную часть Блока « Б.2 » образовательной программы по направлениям подготовки (специальностям):

Направление: **05.03.06** Экология и природопользование
направленность Экологическая инженерия и новая энергетика

Цель практики :

Consolidation of the acquired knowledge in the course Nature Protection and conservation and the necessary skills for environmental research.

Задачи практики :

1. Consolidation of students basic knowledge on nature protection and its territorial forms -protected areas;
2. Introduction to the methods of studying objects of living and inanimate nature;
3. Study of the application of modern environmental methods and techniques.

3. Перечень планируемых результатов обучения

В результате прохождения практики **Academic practice in Nature conservation** у обучающегося должны быть сформированы следующие компетенции:

05.03.06 Экология и природопользование (направленность : Экологическая инженерия и новая энергетика)

ПК.1 Способен осуществлять выполнение экспериментов и оформление результатов исследований и разработок

Индикаторы

ПК.1.1 Постановка, планирование и решение научно-исследовательских задач по закрепленной тематике

ПК.1.2 Использует в профессиональной деятельности экспериментальные и полевые методы научного исследования

ПК.1.3 Анализирует, интерпретирует, обобщает полученные научные данные, представляет в виде отчетов, обзоров, научных работ

ПК.7 Способен оценивать состояние окружающей среды для различных целей (экологический мониторинг, оценка состояния отдельных компонентов природной среды, проведение инженерно-экологических изысканий, ОВОС) и на основе полученных данных разрабатывать рекомендации по использованию природных ресурсов, сохранению и восстановлению окружающей и природной среды

Индикаторы

ПК.7.2 Оценивает состояние отдельных компонентов природной среды: атмосферного воздуха, подземных и поверхностных вод, почв и недр, растительного и животного мира

ПК.7.3 Разрабатывает практические рекомендации по использованию природных ресурсов, сохранению и восстановлению окружающей и природной среды

4. Содержание и объем практики, формы отчетности

Направление подготовки	05.03.06 Экология и природопользование (направленность: Экологическая инженерия и новая энергетика)
форма обучения	очная
№№ триместров, выделенных для прохождения практики	6
Объем практики (з.е.)	3
Объем практики (ак.час.)	108
Форма отчетности	Экзамен (6 триместр)

Примерный график прохождения практики

Количество часов	Содержание работ	Место проведения
Academic practice "Nature protection and conservation"		
104	Consolidation of the acquired knowledge in the course Nature Protection and conservation and the necessary skills for environmental research.	Perm. If possible, a field trip to the Permsky Nature Park (Gremyachinsky district), the Basegi State Nature Reserve (Gremyachinsky and Gornozavodsky districts), the complex reserve of regional significance "Preduralie" (Kungursky and Kishertsky districts) For students with disabilities and disabilities, alternative places of practice are provided, individually provided, taking into account the recommendations of the psychological, medical and pedagogical commission or the ITU.
1. System of specially protected natural territories		
20	Topic 1. The system of specially protected natural territories Regional classification of OPT. Regional features of the placement of protected areas in the Kama region. Areas of different types of protected areas. General scheme of protected areas of the Kama region. Tactical and strategic objectives of the development of the SPNA system. Regional laws on protected areas. State regulation.	Perm city For students with disabilities and disabilities, alternative places of practice are provided, individually provided, taking into account the recommendations of the psychological, medical and

Количество часов	Содержание работ	Место проведения
		pedagogical commission or the ITU.
2. Protected areas of federal significance		
20	Topic 2. Specially protected natural territories of federal significance Classification and categories of protected areas. State Nature Reserve. Definition, tasks (environmental, research, monitoring, cultural and educational), spatial (protected and buffer zones) and organizational structure (scientific department, forest department, protection inspection). Chronicle of Nature. Structure and order of conduct. Features of functioning. Assessment of anthropogenic transformation of ecosystems.	city of Perm, if possible, field trip to the state nature Reserve "Basegi" (Gornozavodsky and Gremyachinsky districts of the Perm Territory) For students with disabilities and disabilities, alternative places of practice are provided, individually provided, taking into account the recommendations of the psychological, medical and pedagogical commission or the ITU.
3. Protected areas of regional significance		
22	Topic 3. Specially protected natural territories of regional significance Classification and categories of regional protected areas. Nature Park. Definition, tasks (environmental, research, monitoring, cultural and educational), spatial (protected and buffer zones) and organizational structure (scientific department, forest department, protection inspection). Features of functioning. Assessment of anthropogenic transformation of ecosystems. Nature reserve. Definition, tasks (environmental, research, monitoring, cultural and educational), organizational structure, Features of functioning. Assessment of anthropogenic transformation of ecosystems.	the city of Perm, If possible, a field trip to the Permsky Nature Park (Gremyachinsky district of Perm Krai), a complex reserve of regional significance "Preduralie" (Kungursky and Kishertsky districts of Perm Krai) For students with disabilities and disabilities, alternative places of practice are provided, individually provided, taking into account the recommendations of the psychological, medical and pedagogical commission or the ITU.
4. Local protected areas		
22	Topic 4. Specially protected natural areas of local significance Classification and categories of local protected areas. Protected landscape and natural monument. Definition, tasks (environmental, research, monitoring, cultural and educational), Features of functioning. Assessment of anthropogenic transformation of ecosystems.	Perm city For students with disabilities and disabilities, alternative places of practice are provided, individually provided, taking into account the recommendations of the psychological, medical and

Количество часов	Содержание работ	Место проведения
		pedagogical commission or the ITU.
5. Anthropogenic transformation of the natural environment in protected areas		
24	Topic 5. Anthropogenic transformation of the natural environment. Preparation of the report. Comparative analysis of the results of the survey of protected area ecosystems of different categories and ranks	Perm city For students with disabilities and disabilities, alternative places of practice are provided, individually provided, taking into account the recommendations of the psychological, medical and pedagogical commission or the ITU.

5. Перечень учебной литературы, необходимой для проведения практики

Основная

1. Sarah E. Gergel • Monica G. Turner: "Learning Landscape Ecology A Practical Guide to Concepts and Techniques. Second Edition", 2017, ISBN 978-1-4939-6374-4. [Электронный ресурс]. https://link.springer.com/book/10.1007/978-1-4939-6374-4

2. Mike Alexander, "Management Planning for Nature Conservation A Theoretical Basis & Practical Guide", 2008, ISBN 978-1-4020-6581-1 [Электронный ресурс]. https://link.springer.com/book/10.1007/978-1-4020-6581-1

Дополнительная

1. C. Max Finlayson, Mark Everard, Kenneth Irvine, Robert J. McInnes, Beth A. Middleton, Anne A. van Dam, Nick C. Davidson: "The Wetland Book", 2017, ISBN 978-94-007-6172-8. [Электронный ресурс]. https://link.springer.com/referencework/10.1007/978-94-007-6172-8?page=1#toc

2. Stephen C. Trombulak, Robert F. Baldwin: "Landscape-scale Conservation Planning", 2010, ISBN 978-90-481-9575-6, [Электронный ресурс]. https://link.springer.com/book/10.1007/978-90-481-9575-6

3. Filippo Schilleci Vincenzo Todaro Francesca "Lotta Connected Lands New Perspectives on Ecological Networks Planning" ISBN 978-3-319-55233 [Электронный ресурс] URL: https://link.springer.com/book/10.1007/978-3-319-55233-0 https://link.springer.com/book/10.1007/978-3-319-55233-0

4. Monica G. Turner, Robert H. Gardner. Landscape Ecology in Theory and Practice. Pattern and Process. Springer, New York, NY, 2015. Online ISBN 978-1-4939-2794-4. Текст электронный. https://link.springer.com/book/10.1007/978-1-4939-2794-4

5. Humberto Blanco, Rattan Lal. "Principles of Soil Conservation and Management", 2008, ISBN: 978-1-4020-8709-7. [Электронный ресурс]. https://link.springer.com/book/10.1007/978-1-4020-8709-7

6. Перечень ресурсов сети «Интернет», требуемых для проведения практики

При прохождении практики требуется использование следующих ресурсов сети «Интернет» :

http://in.psu.ru/elis/ ELIS Library
http://www.iprbookshop.ru Electronic library system IPRbooks

7. Перечень информационных технологий, используемых при проведении практики

Образовательный процесс по практике **Academic practice in Nature conservation** предполагает использование следующего программного обеспечения и информационных справочных систем:

Presentation materials (slides on the topics of lectures and practical classes); on-line access to the Electronic Library System; access to the electronic information and educational environment of the university
Internet services and electronic resources (search engines, e-mail, professional thematic chats and forums, audio and video conference systems, online encyclopedias, etc.)
Office application package "LibreOffice". Programs, demonstrations of video materials (player).
Software for the laptop: OS "Alt Education" (Contract No. DS 003-2020).
The discipline does not provide for the use of special software

При освоении материала и выполнения заданий по дисциплине рекомендуется использование материалов, размещенных в Личных кабинетах обучающихся ЕТИС ПГНИУ (**student.psu.ru**).

При организации дистанционной работы и проведении занятий в режиме онлайн могут использоваться:

система видеоконференцсвязи на основе платформы BigBlueButton (https://bigbluebutton.org/).

система LMS Moodle (http://e-learn.psu.ru/), которая поддерживает возможность использования текстовых материалов и презентаций, аудио- и видеоконтент, а так же тесты, проверяемые задания, задания для совместной работы.

система тестирования Indigo (https://indigotech.ru/).

8. Описание материально-технической базы, необходимой для проведения практики

For conducting laboratory-type classes, for group and individual consultations, routine monitoring and intermediate certification-an audience equipped with presentation equipment (projector, screen, laptop) with appropriate software, chalk (s) or marker board.
Specialized equipment: GPS-navigators, soil drill and wood drill, moisture meter, aspiration psychrometers, luxometer, Ph meter, eclimeter-altimeter, measuring tapes, measuring fork.
Independent work: An audience for independent work, equipped with computer equipment with the ability to connect to the Internet, provided with access to the electronic information and educational environment of the university;
Premises of the Scientific Library of PSNIU

For field practices - equipment provided by the organization.

Помещения научной библиотеки ПГНИУ для обеспечения самостоятельной работы обучающихся:

1. Научно-библиографический отдел, корп.1, ауд. 142. Оборудован 3 персональными компьютера с доступом к локальной и глобальной компьютерным сетям.

2. Читальный зал гуманитарной литературы, корп. 2, ауд. 418. Оборудован 7 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

3. Читальный зал естественной литературы, корп.6, ауд. 107а. Оборудован 5 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

4. Отдел иностранной литературы, корп.2 ауд. 207. Оборудован 1 персональным компьютером с доступом к локальной и глобальной компьютерным сетям.

5. Библиотека юридического факультета, корп.9, ауд. 4. Оборудована 11 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

6. Читальный зал географического факультета, корп.8, ауд. 419. Оборудован 6 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

Все компьютеры, установленные в помещениях научной библиотеки, оснащены следующим программным обеспечением:

Операционная система ALT Linux;

Офисный пакет Libreoffice.

Справочно-правовая система «КонсультантПлюс»

9. Методические указания для обучающихся по прохождению практики

To keep track of the work, the student keeps a report, where he clearly records all the types of work performed for each day. In the report, the student reflects all the information and materials on the studied issues with the greatest completeness. To conduct the practice of obtaining primary professional skills, the student receives a set of documents, which includes: an order for the admission of students to practice, safety instructions, work program, tasks for, rights and obligations of students, an annual plan for the practice, a schedule of consultations for students. Each student in the first days of practice receives an individual task from the head of the practice to study the analysis of a specific object.

The individual task involves the collection of initial data

In a generalized form, the task execution sequence should be as follows •

* analysis of the current state of the problem being solved;
* the choice of the research direction, including the justification of the accepted direction, possible methods of solving the problem and their comparative assessment;
* theoretical and / or practical research;
* summarizing and evaluating research results;
* conclusions and suggestions.

Based on the records, the student makes a report on the practice in accordance with the program, individual task. The student is engaged in the preparation of the report in stages throughout the entire practice.

Report content:

1. Cover (title page).
2. Table of contents of sections

2.1. Introduction. Purpose of the practice, place and date of the practice;

2.2. General characteristics of the laboratory, structure and schemes.

2.3. Safety precautions.

2.4. Individual task.

2.5. Conclusion (conclusions and suggestions).

2.6. List of references.

3. Applications.

The report should include elements of analysis and criticism of the ecological state of the natural object, specific suggestions and comments of the student. The report must be illustrated with graphic material (sketches, diagrams). The report must be designed in accordance with the requirements of regulatory documents for text documentation. The report should contain 15-20 pages of typewritten text on A4 paper, be bound and have a cover page according to the requirements.

All descriptions given in the report should be accompanied by drawings. The digital material placed in the report is recommended to be arranged in the form of tables.

Figures and tables should be placed directly after the reference to them in the report text. The table of contents specifies the section titles and the page number from which the section begins.
A list of references may be provided at the end of the report. The collected technological and environmental documents are attached to the report in the form of an appendix. The report is signed by the student, after verification, the report is signed by the head of the practice. After passing the practice test, the report is deposited.

Фонды оценочных средств для проведения промежуточной аттестации

Планируемые результаты обучения по практике для формирования компетенции. Индикаторы и критерии их оценивания

ПК.1

Способен осуществлять выполнение экспериментов и оформление результатов исследований и разработок

Компетенция (индикатор)	Планируемые результаты обучения	Критерии оценивания результатов обучения
ПК.1.1 Постановка, планирование и решение научно-исследовательских задач по закрепленной тематике	Formulation, planning and solution of research problems on a fixed topic	**Неудовлетворительно** Competence is not developed. The student does not possess the necessary knowledge and skills and does not try to apply them. The basic level of competence formation has not been reached. **Удовлетворительно** Competence is not sufficiently developed. The student partially demonstrates the knowledge and skills that are part of the competence. He tries, strives to show the necessary skills, understands their necessity, but he does not always succeed. Only the basic level of competence formation has been reached. **Хорошо** The student possesses knowledge, shows appropriate skills in practical situations, but there are some inaccuracies in the demonstration of mastering the material. An increased level of competence formation has been achieved. **Отлично** The student is comprehensively and deeply possesses knowledge, complex skills, is able to confidently navigate in practical situations. A high level of competence formation has been achieved.
ПК.1.2 Использует в профессиональной деятельности экспериментальные и полевые методы научного исследования	Uses experimental and field methods of scientific research in professional activity	**Неудовлетворительно** Competence is not developed. The student does not possess the necessary knowledge and skills and does not try to apply them. The basic level of competence formation has not been reached.

		Удовлетворительно Competence is not sufficiently developed. The student partially demonstrates the knowledge and skills that are part of the competence. He tries, strives to show the necessary skills, understands their necessity, but he does not always succeed. Only the basic level of competence formation has been reached. **Хорошо** The student possesses knowledge, shows appropriate skills in practical situations, but there are some inaccuracies in the demonstration of mastering the material. An increased level of competence formation has been achieved. **Отлично** The student is comprehensively and deeply possesses knowledge, complex skills, is able to confidently navigate in practical situations. A high level of competence formation has been achieved.
ПК.1.3 Анализирует, интерпретирует, обобщает полученные научные данные, представляет в виде отчетов, обзоров, научных работ	To analyze, interpret and summaries the scientific data, presents its as reports, reviews, scientific works	**Неудовлетворительно** Competence is not developed. The student does not possess the necessary knowledge and skills and does not try to apply them. The basic level of competence formation has not been reached. **Удовлетворительно** Competence is not sufficiently developed. The student partially demonstrates the knowledge and skills that are part of the competence. He tries, strives to show the necessary skills, understands their necessity, but he does not always succeed. Only the basic level of competence formation has been reached. **Хорошо** The student possesses knowledge, shows appropriate skills in practical situations, but there are some inaccuracies in the demonstration of mastering the material. An increased level of competence formation has been achieved. **Отлично** The student is comprehensively and deeply possesses knowledge, complex skills, is able to confidently navigate in practical situations. A high level of competence formation has been achieved

ПК.7

Способен оценивать состояние окружающей среды для различных целей (экологический мониторинг, оценка состояния отдельных компонентов природной среды, проведение инженерно-экологических изысканий, ОВОС) и на основе полученных данных разрабатывать рекомендации по использованию природных ресурсов, сохранению и восстановлению окружающей и природной среды

Компетенция (индикатор)	Планируемые результаты обучения	Критерии оценивания результатов обучения
ПК.7.2 Оценивает состояние отдельных компонентов природной среды: атмосферного воздуха, подземных и поверхностных вод, почв и недр, растительного и животного мира	Evaluates the state of individual components of the natural environment: atmospheric air, ground and surface waters, soils, flora and fauna	**Неудовлетворительно** Competence is not developed. The student does not possess the necessary knowledge and skills and does not try to apply them. The basic level of competence formation has not been reached. **Удовлетворительно** Competence is not sufficiently developed. The student partially demonstrates the knowledge and skills that are part of the competence. He tries, strives to show the necessary skills, understands their necessity, but he does not always succeed. Only the basic level of competence formation has been reached. **Хорошо** The student possesses knowledge, shows appropriate skills in practical situations, but there are some inaccuracies in the demonstration of mastering the material. An increased level of competence formation has been achieved. **Отлично** The student is comprehensively and deeply possesses knowledge, complex skills, is able to confidently navigate in practical situations. A high level of competence formation has been achieved.
ПК.7.3 Разрабатывает практические рекомендации по использованию природных ресурсов, сохранению и восстановлению окружающей и	Develops practical recommendations for the use of natural resources, preservation and restoration of the environment and natural environment	**Неудовлетворительно** Competence is not developed. The student does not possess the necessary knowledge and skills and does not try to apply them. The basic level of competence formation has not been reached. **Удовлетворительно**

природной среды		**Удовлетворительно** Competence is not sufficiently developed. The student partially demonstrates the knowledge and skills that are part of the competence. He tries, strives to show the necessary skills, understands their necessity, but he does not always succeed. Only the basic level of competence formation has been reached. **Хорошо** The student possesses knowledge, shows appropriate skills in practical situations, but there are some inaccuracies in the demonstration of mastering the material. An increased level of competence formation has been achieved. **Отлично** The student is comprehensively and deeply possesses knowledge, complex skills, is able to confidently navigate in practical situations. A high level of competence formation has been achieved

Оценочные средства

Вид мероприятия промежуточной аттестации : Экзамен
Способ проведения мероприятия промежуточной аттестации : Защищаемое контрольное мероприятие
Продолжительность проведения мероприятия промежуточной аттестации :
время отводимое на доклад 2

Показатели оценивания

Does not know the terminology of nature protection, can not define the terms, does not know their differences. It can not give a physical and geographical description of the territory of the internship. Does not know the methods and methods of research, the features of their application in the field and office conditions. Does not possess the tools and devices necessary for conducting environmental research in protected areas, does not know how to apply them in practice. Has no idea about the biodiversity of the study area. Does not know the quantitative and qualitative methods of determining biodiversity. Does not know how to interpret and analyze the results, draw conclusions, and identify cause-and-effect relationships of processes occurring in ecosystems.	**Неудовлетворительно**
He knows the terminology of nature protection. It can give a physical and geographical description of the territory of the	**Удовлетворительно**

internship. Knows the methods and techniques of research.He has the tools and devices necessary for conducting environmental research in protected areas, and is able to apply them in practice. Has no idea about the biodiversity of the study area. Does not know the quantitative and qualitative methods of determining biodiversity. Does not know how to interpret and analyze the results, draw conclusions, and identify cause-and-effect relationships of processes occurring in ecosystems.	**Удовлетворительно**
He knows the terminology of nature protection. It can give a physical and geographical description of the territory of the internship. He knows the methods and techniques of research, the features of their application in the field and in-house conditions. He/she has the tools and devices necessary for conducting environmental research in protected areas, and is able to apply them in practice. Has an idea of the biodiversity of the studied area. He/she is proficient in quantitative and qualitative methods of determining biodiversity.Does not know how to interpret and analyze the results, draw conclusions, and identify cause-and-effect relationships of processes occurring in ecosystems.	**Хорошо**
He knows the terminology of nature protection. It can give a physical and geographical description of the territory of the internship. He knows the methods and techniques of research, the features of their application in the field and in-house conditions. He/she has the tools and devices necessary for conducting environmental research in protected areas, and is able to apply them in practice. Has an idea of the biodiversity of the studied area. He/she is proficient in quantitative and qualitative methods of determining biodiversity.He is able to interpret and analyze the results obtained, draw conclusions, and identify cause-and-effect relationships between the processes occurring in ecosystems.	**Отлично**