

Design of forestry education at the Faculty of Forestry, Poznań University of Life Sciences

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ARTICLE

Abstract

The study presents the general design of the educational process at the Faculty of Forestry, PULS. It does not include a detailed analysis of the program, but attention is focused on other (ie. general) aspects of that process. I am going to analyse, among others, enrolment system, general structure of students and graduates, description of a graduate's profile and the relationship between educational process and research and cooperation with other (domestic and international) entities.

Keywords: faculty of forestry, students, study programs, learning

Streszczenie

W niniejszej pracy przedstawiono ogólny zarys procesu dydaktycznego na Wydziale Leśnym UP w Poznaniu. Jest to opis skupiony na ogólnych aspektach tego procesu takich, jak system rekrutacji, ogólna struktura studentów i absolwentów, sylwetka absolwenta, stosowane metody dydaktyczne oraz związki procesu dydaktycznego z działalnością naukową i współpracą z innymi organizacjami, jednostkami z kraju i zagranicą.

Na Wydziale Leśnym UP w Poznaniu oferowane są studia na kierunku „leśnictwo” na trzech stopniach kształcenia zgodnie z Deklaracją Bolońską. Rekrutacja na studia I stopnia w trybie stacjonarnym jak i niestacjonarnym odbywa się na podstawie wyników egzaminu maturalnego z biologii lub matematyki, zaś na studia II stopnia, w obu trybach, odbywa się na podstawie rankingu osiągnięć na I stopniu oraz egzaminu kwalifikacyjnego.

W ostatnim roku studia na Wydziale Leśnym ukończyło ponad 300 osób (przy ponad 1300 studiujących). Proces dydaktyczny realizowany na kierunku leśnictwo wymusza stosowanie różnych metod dydaktycznych powiązanych z celem, treścią i specyfiką poszczególnych przedmiotów.

Badania naukowe realizowane na Wydziale Leśnym koncentrują się wokół zagadnień związanych z analizą powiązań i prawidłowości występujących w funkcjonowaniu zrównoważonej gospodarki leśnej. Badania te realizowane są w ścisłym związku z potrzebami praktyki leśnej. Natomiast stosunkowo szybkie wprowadzanie nowych rozwiązań naukowych, do bieżących działań gospodarczych w leśnictwie, umożliwiła również dynamiczne włączanie ich do realizowanego procesu dydaktycznego.

Educational offer

Faculty of Forestry at Poznań University of Life Sciences (PULS) offers forestry major at all levels of higher education according to the Bologna process and Polish legal system. Those embrace the following:

1. 3,5-year 1st level full-time engineer program,
2. 4-year 1st level part-time engineer program,

3. 1,5-year 2nd level full-time master program,
4. 1,5-year 2nd level full-time master program conducted in English,
5. 2-year 2nd level part-time master program.

Besides, the offer of the Faculty includes 4-year full- and part-time PhD program.

Enrollment

The PULS Senate resolution regulates the enrollment rules for candidates. Recruitment to the 1st level programs (both full- and part-time) is based on the results of the so-called 'Matura' exam (the standardized external high-school leaving exam) from such disciplines as biology or mathematics. The results are translated into „PULS points” in accordance to the algorithm included in the Senate resolution. The entire enrollment process is performed with the application of the Internet-based electronic system.

Recruitment to the 2nd level programs (both full- and part-time) is based on the results of the 1st level program for students graduated from forestry (75% of places). For the rest of candidates recruitment is based on results of the qualification exam covering the content of the basic and directional disciplines of the 1st level forestry program.

Candidates who are winners of central-level national official competitions on biology and agriculture (forestry part) as well as laureates of some other recognized official competitions are exempted from the qualifying procedure.

Limits for admission to particular types of studies are:

- 1st level studies: 180 places in full-time and 150 in part-time program,
- 2nd level studies: 120 places in full-time, 90 places in part-time program.

Educational offer of the Faculty is addressed to all high school graduates who are interested in forestry, nature and natural environment and who chose mathematics or biology as a subject of their maturity exams ('Matura'). Because of the continuation, this offer applies particularly to the graduates of forestry high technical schools, however the recruitment system at the University by no means promotes graduates of those institutions.

Students and graduates

The overall number of students in forestry is over 1300. The detailed summary is presented in Table 1. Most of the students (52%) attend full-time programs. Further imbalance between the number of students enrolled in full-time and part-time programs is the result of processes which the Faculty has no influence on. They are associated with the current system of recruitment which recently has accepted many more people, who achieved high ranks during the enrollment, but quit the study due to lack of interest in forestry issues (they realized later) than in previous years. Using 'Matura' exam results as criteria for recruitment creates a situation in which a group of candidates who are the most interested in forestry programs (graduates of forestry technical high schools), but usually have lower 'Matura' grades, receive fewer points in the recruitment process (often too few to get enrolled and study).

Table 1. Number of forestry students at PULS (as of 15.12.2011)

Study level (cycle)	Year	Number of students		Total
		Full-time	Part-time	
1	2	3	4	5
1 st cycle (engineer)	I	185	141	326
	II	147	152	299
	III	139	116	255

	IV	128	109	237
2 nd cycle (master)	I	85	68	153
	II	-	36	36
3 rd cycle (PhD)	I	4	3	7
	II	3	5	8
	III	2	2	4
	IV	5	7	12
	> IV	-	7	7
2 nd cycle (MSc) in English	I	7	-	7
TOTAL	-	705	646	1351

Last year more than 300 people graduated from the Faculty. More people graduate in full-time stationary mode than in part-time (non-stationary). A detailed summary of forestry graduates is presented in Table 2.

Table 2. Number of graduates of Faculty of Forestry in 2006-2011 period (as of 15.12.2011)

Study level (cycle)	Year	Number of students		Total
		Full-time	Part-time	
1 st cycle (engineer)	2	3	4	5
	2006	-	71	71
	2007	-	64	64
	2008	-	87	87
	2009	-	45	45
	2010	-	65	65
	2011	122	61	183
2 nd cycle (master)	2006	-	25	25
	2007	-	24	24
	2008	-	41	41
	2009	-	28	28
	2010	-	20	20
	2011	-	22	22
Former 5-year Master study	2006	137	-	137
	2007	192	-	192
	2008	151	-	151
	2009	145	-	145
	2010	135	-	135
	2011	116	-	116
TOTAL	2006-2008	998	553	1551

Structure of graduate's qualifications - graduate's profile for conducted levels of education

A graduate of forestry studies at 'Forest Management' speciality is supposed to have acquired

knowledge and abilities to ensure stability of functioning forest ecosystems and also to compile and implement economic, protective and financial plans, to plan and carry out engineering forest management and to improve the level of forest work mechanization.

Studies at 'Forest Management' specialisation chiefly prepare for:

- work in a field of forest holding planning, arrangement, organisation and management according to natural environment protection requirements for completion of multifaceted protective, social and productive functions of a forest,
- work connected with planning and organising forest reproductive materials and schools, breeding and widely understood forest protection from abiotic, biotic and anthropogenic threats, acquiring and transporting forest materials, game management,
- compiling and implementing economic, protective and financial plans, planning and carrying out engineering forest management and improving the level of forest work mechanization.

Studies at 'Forest environment protection' specialisation mainly prepare to:

- work in the process of planning, arranging, organising and managing promotional forest complexes, national parks, landscape parks, natural parks and also to work in authorities units at different levels of state and local administration related to wildlife and environmental protection and promoting knowledge of forest environment protection in society.

The graduate of that specialisation ought to possess knowledge concerning planning and organising actions for wildlife and environmental protection and particularly soil rehabilitation, tree stand restructuring, reconstruction of small-scale water retention, monitoring threats of forest environment, carrying out preventing activities, compiling and implementing plans to increase the biological stability of forest ecosystems and also economic, protective and financial plans and evaluation of damage being a result of anthropopressure.

Students of 'Forest environment protection' specialisation are educated in order to ensure the stability of forest ecosystems functioning, compile and implement protective plans, negotiate and discuss issues related to forest environment protection ensuring the stability of its multifaceted functions and ecoengineering forest development with particular consideration of forest protected areas.

Economic and social circle of forest-based sector currently looks for a graduate entrepreneur who possesses forestry knowledge and ability to run a company. In 2008 new specialisation of 'Forestry enterprise' was established (Resolution no. 290/2008 of Poznań University of Life Sciences Senate dated 23th April 2008). The fundamental aim of setting up that specialisation is to teach students skills to run business activity in forestry. A graduate forester of that specialisation is prepared to work for State Forests and private ones and in forest-based sector surroundings and has acquired knowledge of: doing administrative work in forest service, agency in timber trade, supplying forest economy with technical equipment, sowing and planting material of trees and bush turnover, trees surgery and urban greenery management.

The applied didactic methods and the organisation of education

Graduates of the Forestry field of study find employment first of all as State Forests personnel and also as scientific institutions employees. Didactic methods were chosen in a way to allow students to familiarize themselves with utilitarian, administrative, research, scientific and technical aspects of the job. A lot of emphasis is put on efficient use of teaching hours in the field and developing students' creativity through encouraging their own participation and work (e.g. classes in the form of Oxford debates).

Progress in learning is verified through tests and oral or written exams. The way of receiving a credit for a course, the scope of material and sources are presented by lecturers during the first classes. The regulations of each course should be in conformity with the Study Regulations.

Those students who achieve at least good results and show directed interests are allowed to appeal to the Dean for permission to continue studies according to individual schedule and programme under the supervision of a tutor chosen by them. The criteria of taking such studies are specified by Faculty Board. An individual timetable deals with determining individual deadlines for completion of didactic duties related to the schedule and study programme (those are exams, practices and others).

Students are allowed to take more fields of study (except for the basic one) and any other courses, also at other Universities. Other ways of individualisation are: realisation of individual professional practice, the choice of optional courses and the individual choice of the subject of Master's dissertation. A student who attends research or implementation work may be exempted by a lecturer from participation in some classes thematically related to the work.

In the education process different didactic means are used: video projectors, computers, slide and overhead projectors, document cameras, DVD players, sound equipment.

During conducting classes lecturers use among others:

- a collection of insects containing over 200 species, including 7000 specimens in different development phases,
- a collection of minerals, rocks and the monoliths of most important soil types of Poland,
- a collection of prepared birds, mammals and antlers,
- herbaria and phytopathological specimens,
- a collection of timber samples and veneers gathered in xyloteque, which is one of the largest in Poland and Europe (over 5000 timber samples inventoried in 2007),
- a collection of slides and videos made by workers of respective Departments.

Some essential materials are given to students in the electronic or printed version (e.g. projects).

For checking students' knowledge there are compiled tests consisting of closed and open questions and problem-solving tasks for some courses.

Recently persons performing teaching at the Forestry field of study published in total 17 coursebooks, didactic books and scripts.

Since 1998/99 the University has attended Program Socrates-Erasmus, in which classes have been conducted in English, including forestry ones. Preparations to conduct lectures included in the study programme in Polish and English are in progress. Two optional courses are also lectured in English: 'Forest and Environment' and 'Plant material production in Poland'.

The Faculty of Forestry takes part in international study programmes. It is feasible to complete a part of studies abroad, for instance as part of Erasmus programme. In that programme one can apply for two types of scholarships: a trip for a part of studies - to foreign university co-operating with PULS or a trip for practice in foreign non-academic institutions (from 3 to 12 months).

Central European Exchange Program for University Studies (CEEPUS) consist of an intercollegiate co-operation with the participation of partners from at least 3 countries. In that programme students are granted short-term practice scholarships, one-semester study scholarships and practice scholarships. There are also refresher seminars and language or special courses. Leonardo da Vinci programme started a programme of student practice, including 15- and 26-week trips to entrepreneurs in EU and associated countries. Foreign student exchange of the Faculty works inter alia as a part of European programme SOCRATES.

For a few years students of the Faculty has been attending the international Master's course, which is mainly organised by Swedish units, and other countries of the Baltic Sea Region (our Faculty therein) are the co-organisers. This co-operation achieved formal approval and financing in project: NEW Curriculum Development (CD) titled „European Master of Forestry with focus on the Baltic Sea Region” (EUROFORESTER) - PROGRAM SOCRATES: HIGHER EDUCATION (ERASMUS) - PROG/MOD.

It is worth mentioning that The Foresters Students Association of PULS conducts an international activity, co-operating with IFSA (International Foresters Students Association), and for 14 years has been organising The International Forestry Students' Competition and constantly has many members.

Disabled students have an opportunity to learn a profession through an individual course of study (if necessary) so as not to lose any content of basic education. It is also possible to get credits individually, after receiving permission from lecturers.

The essential part of education process is the availability of lecturers for students. The lecturers are required to set their office hours for consultations. In order to increase availability of tutors for students who are preparing dissertations the maximal number of such students under the supervision of tutors has been specified as follows: 6 students per one independent worker and 2 per non-independent one.

The aims of practice, the forms of implementation, control systems and receiving credits

Professional practices are organised on the basis of agreement with the General Directorate of State Forests (GDSF) in Warsaw, dated 19th July 2002, concerning the apprenticeship of the Faculty of Forestry students in organisational units of State Forests. According to the agreement the Department of Personnel and Training of the General Directory of State Forests within at least 3 months before planned beginning of practice receives from deanery a list of students, including names of specified forest inspectorates in which students would like to undertake an apprenticeship. Then the Department of Personnel and Training GDSF informs forest inspectorates about applying apprentices.

Students of full-time engineering studies serve their apprenticeship after II year of studies. The practice lasts 4 weeks and can be completed in State Forests, national parks and in Offices of Forest management Planning and Forest Economy. After the apprenticeship, which is conducted according to framework programme compiled by the Faculty of Forestry, students deliver certificate of practice completion to the deanery.

Students of part-time studies working professionally in accordance to 'Forestry' direction of education are allowed to apply to the Dean for receiving a credit of 4-week practice which is to be completed in State Forests units.

Apart from the course practice, students attend optional practice, mainly abroad. Students' attendance in science camp works or at foreign practices may be a ground to give credit for professional practice, completely or partly.

The rules of receiving a diploma

It is necessary to write a dissertation in order to graduate from studies: Engineer's thesis at the first cycle degree and Master's thesis at the second cycle degree. Currently at full-time studies a diploma is received by students having graduated from long-cycle studies. Requirements for receiving a Master's degree include: completed Master's dissertation, passed Master's diploma exams and having obtained necessary amount of ECTS points. The requirements for admission to the exam are as follows: receiving credits for all courses, completing practice included in Master's Study Programme and receiving a positive note for Master's dissertation. Students choose one speciality of all Master's specialities conducted at the Faculty. That decision is to be made at the end of 6th semester. The dissertation is written under the supervision of a professor or an independent PhD. In reasonable cases the Dean may entitle a non-independent PhD, senior lecturer or an expert from outside the University (at least PhD) to fulfill that role. Students receive suggestions about potential tutors and topics after considering students' ideas. Materials for dissertations are mostly gathered in experimental forests (FES Siemianice and FES Murowana Goslina), in private laboratories and in

forest inspectorates. Students with directed interests have possibility to do research with other institutions' participation.

Engineer's thesis ought to be a project work, an expert work or an experimental work. Master's thesis should include research aspects. Engineer's thesis has to contain current state of knowledge on a given field and a project of putting that knowledge into practice. The experimental work ought to present results of independently conducted research task, which is directly controlled by the tutor. The author of the experimental work is obliged to analyse and interpret obtained results in a context of current literature.

The dissertation is judged by the tutor and a reviewer appointed by the Dean. The topic of the thesis must be accepted by the Dean. Written dissertations are subject to copyright. During long-cycle studies, in reasonable cases, a student can take the Engineer's degree exam.

The final exam consists of issues connected with the field of study and speciality and the discussion on the dissertation. The final note is determined according to the rules contained in the Study Regulations.

The outstanding dissertations marked out by the Faculty Board compete for Jerzy Zwolinski Award. The award is given in accordance to binding Regulations in two categories: life sciences and other sciences.

Relation between conducted scientific and research activity and didactic process, concerning publications with students' participation

An overwhelming majority of the research is related to scientific development of young personnel and includes a subject connected with pursued doctoral and habilitation dissertations. Another type of conducted research is related to shaping scientific specialisation of the Faculty. The whole research matter indirectly serves the improvement of didactic process, through the scientific development of the workers. Direct relation between the conducted research subject and didactic process bases on involving students of IV and V year, pursuing their Master's dissertations. In the process, research issues are included in the programme of diploma seminars. The results of research are also presented during lectures on specialisations. The publishing output of the Faculty of Forestry workers is closely connected with content lectured out for Forestry students. It is confirmed by the publishing output (included in annex no. 3) of the workers making a minimum of the staff. Publications written together with students are mostly effects of completing Master's dissertations and beginning of gathering materials for doctoral theses.

Interfaculty and international co-operation

Units of the Faculty of Forestry at PULS first of all cooperate with equivalent units of the Faculty of Forestry at Agricultural University of Krakow and the Faculty of Forestry at Warsaw University of Life Sciences. Departments of the Faculty of Forestry intensively cooperate with units of Adam Mickiewicz University and (less intensively) with units of Universities of: Bydgoszcz (University of Technology and Life Sciences), Krakow (Jagiellonian University), Warsaw (Warsaw University), Torun (Nicolaus Copernicus University), Lodz (Lodz University), Wroclaw (Wroclaw University, University of Life Sciences) and with units of other universities.

For many years there has been a continuous and intensive cooperation between our Faculty units and equivalent units of the Institute of Dendrology of Polish Academy of Sciences in Kornik as well as Forest Research Institute in Warsaw. Moreover, a cooperation is still maintained with the Institute of Plant Protection in Poznań and the Institute of Plant Genetics in Poznań.

The co-operation of the Faculty of Forestry units with the above-mentioned units of other universities and institutions involves, among other things:

- undertaking joint research subjects and publishing their results,

- promoting scientific personnel,
 - mutual reviews - of the output, doctoral dissertations, publishing,
 - mutual consultation,
 - an implementation of didactics - particularly during postgraduate lectures,
 - participation in symposia and conferences and shared organising them,
 - sharing equipment, teaching aids and literature,
 - sharing and exchanging seed and other biologic material.
- The Faculty of Forestry of PULS is an active member of:
- IUFRO (International Union of Forest Research Organizations). Three persons serve (or served) as officers in work groups: 2001/02/07: 'Root and butt roots', 2001/05/01: 'Characterization of plant material' and 2008/05/01: 'Temperate forest regeneration'.
 - EFI (European Forest Institute). Since 2005 the Institute has had a status of European international organisation, and inspired by the Faculty of Forestry of Poznań efforts to ratify functioning of that organisation in Poland should have been confirmed by the Ministry of Foreign Affairs in 2009.
 - FTP (Forest-based Technology Platform). The Faculty of Forestry belongs to Polish Forest-Based Sector Technology Platform (PPTSLD), which belongs to European Forest-Based Sector Technology Platform. The main aim of that organisation is to define research programmes including forest-based sciences (presented for implementation at 7th Framework Programme of European Economic Community) and coordinate scientific co-operation with industrial sector. Our Faculty representative has been chosen a member of the Steering Committee and as regards European structures, the representative of whole national forest-based sector has been chosen to take place in Supporting Committee of European Platform in 7th Framework Programme. The Faculty of Forestry co-operates with foreign units on the basis of signed formal agreements on scientific and didactic co-operation and also informal agreements based on individual contracts of researchers. So far agreements with 9 units from 8 countries have been signed (or are in the last phase of preparation): Lithuania, Germany, Russia, Romania, Slovakia, Sweden, Ukraine and USA. Those units include:
 - Biological Institute, Romanian Academy of Science (PAN agreement) (Romania),
 - Colorado State University (USA),
 - National Forestry Institute in Eberswalde (LFE), Mecklenburg-Vorpommern State Forest (Germany),
 - Swedish University of Agricultural Sciences, Uppsala (Sweden),
 - National Forestry University of Ukraine in Lviv (Ukraine),
 - Faculty of Game Management of Irkutsk State Academy of Agriculture (Russia),
 - Faculty of Forestry of Lithuanian University of Agriculture in Kaunas (Lithuania),
 - Faculty of Forestry of Technical University of Zvolen (Slovakia),
 - Faculty of Forestry of Texas A & M University in College Station (USA).
- Faculty research workers' international co-operation still focuses on:
- undertaking joint research subjects usually resulting in publications in foreign periodicals and magazines from ISI Master Journal List,
 - reviewing texts before printing,
 - participation in international conferences, seminars, symposia and trade fairs,
 - sharing experimental areas, laboratories, apparatus and gathered research collections,
 - sharing and exchanging seed and other biological material,
 - consultation and gathering literature,
 - tutoring postgraduate and Master's students,
 - exchanging didactic experience and materials.

Summary

The text presents general shape of didactic process at the Faculty of Forestry of Poznań University of Life Sciences. It does not include a specific programme analysis but a description focused on other (ie. general) aspects of that process, such as recruitment system, general structure of students and graduates, the graduate profile, applied didactic methods and relation between a didactic process and scientific activity and co-operation with other organisations and local and foreign units.

Three education levels of studies are offered at the Faculty of Forestry of PULS at the "Forestry" field of study, according to Bologna declaration. Recruitment to the first cycle full-time and part-time studies is based on the results of 'Matura' exam on Biology and Maths and to the second cycle studies, in both study modes, it is based on the level of the first cycle achievements and qualification exam.

Last year more than 300 people graduated from the Faculty of Forestry (with over 1300 studying, in total). The didactic process carried out at the Forestry field of study requires using different teaching methods related to the aim, content and specification of respective courses.

Research conducted at the Faculty of Forestry focuses on issues connected with relation analysis and regularities appearing in functioning of the balanced forest economy, nevertheless comparatively quick introduction of new scientific solutions to the current economic actions in forestry enables their dynamic inclusion in conducted didactic process.

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