

FACULTY OF VETERINARY MEDICINE

Wrocław University of Environmental and Life Sciences

POLAND



SELF EVALUATION REPORT

for

European Association of Establishments for Veterinary Education

Wrocław 2015

Salutas animalium pro salute homini

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Introduction

HISTORICAL OUTLINE OF THE FACULTY

The Faculty's history dates back to 1881, when the city of Lviv saw the opening of the third in Poland veterinary school which gained the status of the Academy in 1897 and had excellent reputation. After World War II The Faculty of Veterinary Medicine formally started operation on the 1st of November 1945. During these hard times the 22nd of November 1945 was the date of inauguration for first and second year students, and the first meeting of the Faculty Board took place on the 14th of December. Faculty was a part of higher education institution called Wrocław University and Polytechnic.

In 1951 there was the creation of The School of Agriculture, in 1972 renamed to the Wrocław Academy of Agriculture, and in 2006, when the status was sired to university level, named the Wrocław University of Environmental and Life Sciences (WUELS). As a new independent Wrocław University started operation, the Faculty of Veterinary Medicine was one of its five faculties.

During over 60 years of the Faculty existence in Wrocław many achievements were accomplished owing to the immense effort and diligence of several generations of faculty staff.

During last years the study program has been changed to meet new standards described in Higher Education Act and EAEVE suggestions and guidelines. Most of the practical clinical training takes place during the last three semesters. Also, the curriculum of all Faculties of Veterinary Medicine in Poland has been unified to some extent to ensure easier mobility for students (MOSTAR program) between faculties. Faculty is open for international cooperation and education expressed in many Erasmus + program partners and teaching in English language a full studies (English Division) for foreign students.

In the year 1998 faculty was first time evaluated by the group of EAEVE experts. After changes made according to the suggestion came out after the assessment we were accepted to the "positive list" of EAEVE. Evaluation in the year 2009 was not successful for the Faculty and after the appeal procedure we were not positively evaluated with 2 deficiencies number 1 (isolation units and number of large animal cases).

In 2015 the Faculty celebrates its 70th anniversary. Throughout the years it has been developing dynamically in terms of infrastructure, teaching activities and scientific research. The quality of education are highly appreciated by students, Chamber of Veterinary Surgeons

and the Polish Accreditation Committee (ENQA member) which granted the Faculty (2012) with distinguishing evaluation in this respect.

Wrocław Faculty of Veterinary Medicine has received a status of Leading National Research Center with other 6 different institutions from Wrocław.

“The consortium of Wrocław Center for Biotechnology has received the status of the Leading National Research Center (KNOW) for the years 2014-2018. The interdisciplinary nature of the consortium enables comprehensive and wide spectrum of scientific research enforcement and implementation (“from idea to industry”). The involvement of all consortium representatives allows to perform complex scientific research in the range of biotechnology, chemistry, immunology and biomedicine, medicine and veterinary as well as food and nutrition sciences. Strict cooperation of consortium partners ensures synergism of activities, added value achievement which is essential in order to ensure high effectiveness of an application of basic research results in new technologies creation and knowledge transfer to industry”.

GENERAL INFORMATION

Faculty of Veterinary Medicine is a part of the Wrocław University of Environmental and Life Sciences (former University of Agriculture in Wrocław).

University consists of 5 faculties:

- The Faculty of Live Sciences and Technology
- The Faculty of Biology and Animal Science
- The Faculty of Environmental Engineering and Geodesy
- The Faculty of Food Science
- The Faculty of Veterinary Medicine

University in numbers:

5 Faculties,
over 10.000 students
over 2200 places for students in dormitories,
1700 employees, including 250 Professors
27 fields of study, 33 specialities, 36 post-graduate course,
2.000 publications annually
200 research projects annually
over 300 patents

All building and clinics of the faculty are located inside the city and except Division of Anatomy are in one academic campus (Grunwaldzki Campus).
Division of Anatomy is located 3 km away but also inside the city of Wrocław.

DEGREES

The Wrocław University of Environmental and Life Sciences is authorized to award the following doctoral and habilitation degrees:

- Doctor of Agricultural Sciences in: agronomy; agricultural engineering; animal husbandry; food technology and nutrition; environmental science,
- Doctor of Veterinary Medicine,
- Doctor of Technical Sciences in: building; geodesy and cartography,
- Doctor of Biological Sciences in: biotechnology,
- Habilitations in: agronomy; agricultural engineering; animal husbandry; food technology and nutrition; environmental science,
- Habilitations in Veterinary Medicine

Chapter 1. OBJECTIVES

1.1. Factual information

Mission of the Faculty and University:

“The Wrocław University of Environmental and Life Sciences focuses its wide-ranging activities on education and research covering agriculture and related sciences. The profile of the WUELS and its mission are directly involved in transformation programmes dealing with rural development and food quality and management, with full respect paid to social support and interaction. The knowledge acquired and the research projects realized at the University make provision for future development, regarding all aspects of environmentally sustainable development, which is friendly to human and animal welfare.”

The principal tasks of the faculty are education of students, conducting research, preparation of candidates to independent research work as well as education of the people with professional titles in order to broaden general and specialist knowledge. The tasks are also development and popularizing technological progress, cooperation in the practical usage of scientific achievements and care of the health and physical development of students. The University operates on the basis of freedom of scientific research and teaching. The University is also obliged to educate students in a spirit of respect for human rights, patriotism, democracy and responsibility for the social and national life; to popularize the cult of truth and conscientious work at the atmosphere of mutual kindness in the academic environment as well as to provide the services.

One of the most important educational objective for the Faculty is to provide a curriculum and the instructional resources necessary to enable students to obtain the professional title of *lekarz weterynarii*, an equivalent of brit. Veterinary Surgeon and am. Doctor of Veterinary Medicine. The Faculty develops a curriculum that provides a strong foundation in veterinary practice and sciences. It is expected that graduates will be well prepared to meet professional challenge in their career. Also an educational objective is to provide education opportunities for postgraduate veterinarians. Most gifted students can continue education in a 4 year program of doctoral studies ending with PhD degree. Faculty provides specialistic study for graduated veterinarians (lasting 4 to 6 semesters) leading to diploma of specialist. An important issue is to make graduates able to get into the profession of public trust with fully acquired “day one skills”.

Furthermore the Faculty provides continuing education opportunities for all veterinarians organizing workshops, conferences, practical training by itself or with cooperation with companies or industry. It is very important part of the postdiploma education for all vets who want to stay professionalist in the career.

In the field of research Faculty has to be active in numerous various areas (some examples):

- to introduce new methods into veterinary research and practice
- to find the ways for Faculty progress
- to improve the quality and safety of food of animal origin,
- to improve animal welfare and to deal with problems of animal and human health.

Service area is very important part also for teaching as for research. Faculty is to provide wide range of services available for farmers, individual clients, other research establishments, industry and private companies.

Apart from the general mission the goals are specified in development plan issued by the Faculty Council on the basis of a joint discussion process of teaching and research staff, students representative and support staff.

In the academic year 2007/2008 we started English Division study programme for foreigners. We develop this program study with the benefit for students and for staff. Each year there is one group of student in this program.

In the year 2014 Diagnostic Experimental and Innovative Biomedical Technology Center was build up and opened in the Faculty. It is a great opportunity for showing the students the top equipment and procedures and for cooperation with other establishments.

1.2. Comments

Changes are never-ending process. Organization of decision making procedures within the University is not favorable for our Faculty. Poland national system of academic education financial support is one of the poorest in Europe so it is really hard to work and catch the goals in such a conditions. Faculty is to generate the income from offering service to the clients and industry. In that area we manage quite well but 30% of every money incoming to

the Faculty (from fees, conferences, service, some grants) is given to the University for central budget.

Geographical location of the Faculty is in the area where for last 20 years there is conducting a great change in animal production bussiness. Animal farms are being closed and moved far away from our city. This agricultural changes in animal production industry are challenge for the Faculty and generates extra costs for teaching and research functionality.

One of the major problem concerning the faculty as a part of the vet profession in Poland is that other university establishments open a veterinary medicine direction of study (Poznań, Kraków). Till January 2015 there were 4 faculties of veterinary medicine in Poland (population around 39 millions) which was enough to secure the flow of veterinarian inside the profession. Nowadays 2 new faculties are opened with the strong voice against it from Polish Chamber of Veterinary Surgeons and existing four faculties. In 2009 there was a meeting with Minister Of Higher Education organized by four faculties with the experts representing EAEVE and FVE. Unfortunately the Ministry stayed deaf for reasonable arguments presented.

Graduates of the Faculty do not have problems in finding jobs related to veterinary medicine. The students look for their jobs on their own well before finishing their studies. Some pharmaceutical and industry companies apply for meetings with the students to offer them job and Faculty helps in organizing such a events.

The quality of services of the Faculty is monitored and constantly improved. In recent years, it has been considerably improved thanks to rebuilding of facilities and new equipment purchases.

The major strengths of the Faculty:

- well-qualified teaching and research staff,
- a comprehensive curriculum,
- post-graduate teaching activity,
- adequate research facilities and equipment,
- relatively good equipment and a high number of especially small patients in clinics,
- good relations with practicing veterinarians

(Faculty was awarder twice (2004 and 2012) by Polish Accreditation Committee).

The major weaknesses of the Faculty:

- insufficient funds for salaries of teaching staff and funds for materials used for practical training,
- an inadequate number of technical staff in some departments,
- localization of the Faculty in the agriculture region that makes cost of education in the area of large animals and meet hygiene high,
- to little independence within the University.

1.3. Suggestions

Nowadays we are facing the strategic decision that is to be made about moving part of the Faculty outside the city and creation of a “Large Animal Clinic” on the suburban area. Now limitation of the area in keeping large animals in the campus are the factor that impacts on that strategic discussion. Another idea is to buy/build a farm with large animals dedicated to the Faculty. Situation in the market of large animal production is changing into XXL farms with limited access for the outside bodies like universities/faculties.

One of the move should be, in cooperation with three other Faculties of Veterinary Medicine, to urge the Ministry of Higher Education and Science to introduce significant changes in financing the teaching of veterinary medicine in Poland. The authorities must recognize that veterinary education is more expensive than other disciplines. The budget must allow the Faculty to perform adequate research based teaching since well educated veterinarians are responsible not only for the animals’ health and welfare, but also for food hygiene and public health associated with food safety.

Chapter 2. ORGANIZATION

2.1. Factual information

Name of the establishments:

FACULTY of VETERINARY MEDICINE
Wrocław University of Environmental and Life Sciences

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50-375 Wrocław, POLAND

Tel. +48 71 3205107

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email dziekanat.wmw@up.wroc.pl

www www.up.wroc.pl (University)

www.wet.up.wroc.pl (Faculty)

University Bodies

The board entities of the University are the Senate and Faculty Councils whereas one person entities are Rector and Deans.

The tenure of one person and boards authorities office starts on the 1st of September of the election year and lasts 4 years (now 20012-2016). Any person with the academic title of professor can become a Rector. Up to four vice-rectors are appointed at the University. Rector determines the number, competences and range of their activities.

Authorities of the University:

Rector –	prof. dr hab. Roman Kołacz
Vice-Rectors:	
- for International Relations and Regional Cooperation	prof. dr hab. Alina Wieliczko
- for Research	prof. dr hab. Tadeusz Trziszka
- for Students Affairs and Education	prof. dr hab. Danuta Parylak
- for Development and Informatization	prof. dr hab. Andrzej Drabiński

Authorities of the University:

Dean of the faculty:	dr hab. Krzysztof Kubiak, prof UPWr.
Vice-Dean for students matters	dr Stanisław Dzimira (DVM, PhD)
Vice-Dean for international cooperation	dr Robert Karczmarczyk (DVM, PhD)

Faculty Councils consists of the following members bearing a decisive vote:

1. Dean as a chairperson
2. Vice-Deans
3. Academic teachers with the professor title or the reader's degree employed on the faculty
4. Elected representatives of:
 - other academic teachers
 - students
 - doctoral students
 - non-teaching staff

The Faculty Council session (at least once a month) are attended by Trade Union Representatives with advisory voice, one representatives per trade union whose statutory unit operate on the university/faculty.

Session can be also attended by retired academic teachers with advisory voice formerly employed on the faculty at the professional post.

The Faculty Council is authorized to:

1. determine general majors of the faculty functioning,
2. establish curricula and study syllabi after consulting the faculty assembly of the student government
3. arrange the content-related and financial operation plan and collecting the reports on its realization
4. evaluate Dean's activity and confirm the dean's annual report concerning the faculty functioning
5. allow outside teacher to conduct classes (extramural studies) and allow academic teachers without a professor's title or reader's degree to conduct lectures
6. award academic degrees in accordance with the possessed entitlements and submit the motions on appointment of professors,
7. pass regulation concerning other matters specified in the Statute and other University regulations or requiring the opinion of the academic community
8. create international cooperation (with acceptance of the Senat).

List of the active Commissions working for Faculty Council:

- Finances
- Study Curriculum
- Investments and Repair Activity
- International Cooperation
- Research
- Clinics
- Personnel Rewards and Honours
- Students Affair
- Evaluation of Teaching Staff
- Doctoral Studies
- Equipment and Laboratories

The faculty Council session are called of the Dean's own initiative or on the motion of at least 1/5 of the faculty Council Members.

Council can establishes permanent and seasonal commissions.

The bills are passed by an absolute majority of votes at the presence of at least 50% of the entitled voters. The Faculty Council resolution can be appealed against to the Senate.

STRUCTURE OF THE FACULTY

Department of Animal Physiology and Biostructure

- Division of Animal Anatomy
- Division of Histology and Embryology
- Division of Animal Physiology

Department of Biochemistry, Pharmacology and Toxicology

- Division of Biochemistry
- Division of Pharmacology and Toxicology

Department of Immunology, Pathophysiology and Veterinary Preventive Medicine

- Division of Immunology and Veterinary Preventive Medicine
- Division of Pathophysiology

Department of Pathology

- Division of Pathomorphology and Veterinary Forensics
- Division of Microbiology

Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats

- Division of Clinical and Laboratory Diagnostics
- Division of Parasitology

Department of Epizootiology and Clinic of Bird and Exotic Animals

- Division of Infectious Diseases of Animals and Veterinary Administration
- Division of Bird Diseases

Department of Reproduction and Clinic of Farm Animals

Department of Surgery

Department of Food Hygiene and Consumer Health Protection

- Division of Raw Animal Materials Hygiene
- Division of Food Microbiology and Processing Hygiene

Diagnostic Experimental and Innovative Biomedical Technology Center

Computer Lab

Faculty Vivarium

Decreasing the number of Department was enforced according to the suggestion of EAEVE experts visiting our faculty in 1998. According to our University Statute department can be formed with at least 8 academic teachers including 2 with a title of professor or habilitation.

On faculty there are special units:

- a) Flow Cytometry Laboratory
- b) Cell Molecular Laboratory
- c) Chromatographic Laboratory

- d) Semen Quality Laboratory
- e) Serologic Laboratory
- f) Centre of Clinical Imaging
- g) Centre of Gastroenterology
- h) Centre of Cardiology

Creating such a units allows to teach the students and perform scientific work with modern techniques. These units also offer service for public. Structure of units allows to avoid unnecessary possessing of special scientific equipment and ensures efficient usage of modern equipment.

2.2. Comments

Implemented structural (about Departments) changes have not developed the functioning of the faculty. It is connected with geographical localization of Departments, in which some labs are located in different buildings. Furthermore according to the Statute the unit responsible for finances is the Department. Creation of new department by junction 2 or 3 former ones made increase of bureaucracy and a lot of misunderstanding concerning financial support. Some of the existing departments (i.e. Department of Pathological Anatomy, Physiopathology, Microbiology and Forensic Veterinary Medicine) were formed with former departments which research and teaching areas are not close to each other. Some department has a lot of hour of teaching to carry (strongly over sizing teaching “pensum” - 240 didactic hours) while some have hardly enough.

Veterinary medicine is totally different from any other faculties in our University. But “being one of five” in that field turn as in the weak position.

2.3. Suggestions

According to good management standards faculty-department oriented structure must reflect the areas of research and teaching. More independence of smaller units might be a good solution.

Chapter 3. FINANCES

3.1. Factual information

3.1.1. General information

The basis for the division of the budget subsidy, for teaching purposes and its allocation to faculties, is an algorithm established by the MHES. The funds from the MSHE are awarded based on the policy of the Ordinance of May 9, 2008 on rules of the allocation of national budget funds to public and independent Universities (Journal of Laws No. 89 item 544 of May 23, 2008) with further changes. The basis (70%) of funds is formed by constant, previous year transfer (called the base) and remaining 30% is formed by variable indicators (scales). The indicators are: indicator of student – doctoral component scale (0.35), indicator of academic staff component scale (0.35), indicators of balanced development and research component scale (0.10 each), indicators of permissions and international transfer component scale (0.05 each). It takes into account cost – absorptive coefficients. For faculties involved in theoretical teaching (e.g. humanities disciplines) the coefficient is the lowest and amounts to 1. Veterinary medicine is one of a disciplines which have the highest rating (the coefficient amounts to 3). The distribution of incomes within the University is carried out in accordance with the resolution of WUELS Senate . Based on the Senate resolution, 30% of Ministerial funds are dedicated to purposeful activities (for example renovations), to the Library, Physical Education and Sport Study, and Foreign Languages Study. They also finance the University's costs and constitute the University's budget reserve. Remaining 70% of Ministerial funds are divided among Faculties based on the WUELS algorithm established rules (similar to the MHES). This funds are dedicated centrally (by the WUELS) to employees earnings and didactics. Funds (dedicated to the Faculty) are then divided among Departments based on the number of realized didactic hours. The funds for research from the national budget are distributed directly by the Ministry among the faculties, according to the position on the national ranking list. Other principles of funds distribution includes: quality and quantity of scientific publications, revenues from research grants, services, revenues from organized meetings and conferences, and post-graduate studies. The WUELS indirect costs for the sources, that the Faculty obtain from the Ministry for statutory activity, as well as for grants realization amount to 30%. Decisions, concerning the level of WUELS indirect costs, are made by Rector after deliberation with the University Budget and Financial Commission and approved by the Senate. The Faculty's funds obtained from the Ministry for the statutory activity (deducted by the UWM indirect costs – 30%) are divided among Departments based on their science ranking. This ranking is created based on science achievements (number and

quality (IF) of publications) of employees of each unit (90% of funds). Remaining 10% is divided based on the Department size teaching activity. About 3% of obtained funds constitute the Dean's reserve which can be used under extraordinary conditions. Unused funds must be spent in the following year. Otherwise, unused funds for statutory activity must be returned to the Ministry (at our Faculty this kind of situation never took place). The funds for main science – research and didactic equipment purchases are granted based on the applications (projects) for apparatuses by the MHES. Apparatuses purchase is also effectuated within National Science Center, National Research and Development Center and EU's science projects realization. Temporary renovations of laboratories are financed by sources obtained for statutory and/or service activity and from WUELS central sources.

The faculty allocates the received amounts for:

- gross remuneration with surcharges (social insurance, wealfare benefit fund) for academic teachers and employees who are not teachers but who conduct teaching activity,
- utilization and repairs of instruments and equipment used in teaching,
- costs of scientific publications,
- costs of student's practice,
- cost of teaching materials,
- cost of furnishing for the research-teaching unit rooms,
- staff education related costs (research training, doctoral and habilitation scholarships, doctoral studies, education supplementary courses, reviews),
- teaching services performed by other units, i.e. bilateral provision of services by faculties, Sports Centre, Foreign Language Centre, extramural units.

The assets from the Committee for Research Projects received to carry out statutory activities are allocated for:

- gross remuneration with surcharges for engineering and technical staff employment of which exceeded the limit assumed for teaching operations,
- part of gross remuneration with surcharges for academic teachers,
- depreciation of fixed assets utilized in research activities,
- research-work-material-related expenditure,
- covering the part of overheads at the amount of 30% of direct costs.

Financial assets received for the faculty's own research are allocated for:

- costs of doctoral and habilitation dissertation,
- costs of internal grants,
- costs of other faculty research
- covering the part of overheads at the amount of 15% of direct costs.

3.1.2. Information on extra income

Faculty has own source of money coming from registration fees and students who repeat semester or year of the study curriculum.

Another source of income are money paid by regular student who pay for first 6 semesters.

English Division – the study in English language for foreigners are also the source of income.

Tuition fee is 8000 Euro per year of study.

Registration fee for candidates is established by Rectors announcement as is 80 PLN.

Faculty obtains considerable amount of money from clinical and diagnostic service and expertise provided. Cooperation with industry is also a source of some income

Research grants are another source of money (National Science Center, National Research and Development Center and EU's science projects).

Additionally for three years 2015-2017 Faculty will be granted with about 1 000 000 PLN annually as a reward from Polish Accreditation Committee.

Moreover for the years 2014-2018 Faculty will be granted with about 1000 000 annually for receiving the status and being a part of the Leading National Research Center (KNOW).

Table 3.1. Income/Revenues (National currency: Polish zloty – PLN)

1 € = 4.11 PLN, exchange rate from January 2015.

Year	State (government)		Income generated by the Faculty		Total
	To university administered outside the Faculty	Direct to the Faculty	Income from service provided	Research	
2014/15	13 900 000	3 000 000	4 050 000	4 800 000	24 950 000
2013/14	13 100 000	2 800 000	3 700 000	3 300 000	22 900 00
2012/13	13 300 000	2 900 000	3 900 000	3 050 000	23 150 000

Table 3.2. Expenditure (in PLN)

Year	Pay	Non Pay				Total
	Salaries	Teaching support	Research support	Clinical support	Other	
2014/15	12 400 000	4 550 000	5 600 000	1 700 000	-	24 250 000
2013/14	12 100 000	3 600 000	4 500 000	1 500 000	-	21 700 000
2012/13	12 200 000	3 850 000	4 900 000	1 400 000	-	22 350 000

Extra table. Average basic staff salaries netto.

	PLN	EURO
Full professor	-	5500,00
Associate professor		1375,00
Assistant professor		900,00
Senior research assistant		750,00
Research assistant		2900,00
Technician		725,00
Animal care taker		2100,00
		1600,00
		400,00
		400,00

Average month salary in Poland (netto): 720 EURO

Minimum month salary in Poland (netto): 280 EURO

3.2. Comments

The funds awarded to the Faculty by the MHES based on the cost-consuming coefficient for didactic activity are not adequate to the real costs of education, which are significantly higher. These higher costs result from an extramural teaching at breeding farms, food animals, fur animals and poultry farms as well as at slaughter houses, food processing plants and practitioners. Directors and managers of the above mentioned institutions participate in this cooperation receiving in return advisory services, veterinary consultations and treatment, and other kinds of help free of charge. Practitioners are often our graduates supporting their bonds this way with the Faculty.

The funds presently obtained by the Faculty for research seem to be satisfactory. On the other hand, funds for salaries of highly qualified academic and support staff, and funds for teaching materials seem to be somewhat insufficient. The salaries of teachers, especially those involved in clinical study and training, are much lower than the salaries of private

practitioners. That is the reason that teachers working in clinics sometimes undertake private practice. The number of technical staff seems to be presently too low.

Increase of the staff salaries is centrally managed and limited by Ministry of Higher Education and Science so it does not look optimistic.

It looks from the above tables that financial situation of the Faculty seems to be well but this is the result of hard work of people with passion.

3.3.Suggestions

The priority of the Faculty is further development of clinical and service activities, which will result in even better practical training of students. That is why the funds for salaries of highly qualified academic and support staff, and funds for teaching materials should be somewhat increased.

In order to manage these suggestions, the Ministry should increase the cost-consuming coefficient from 3 to at least 5 which would directly increase the funds for education.

Better organization of service offered to clients (individual, farmers, industry) should improve income of the Faculty.

CHAPTER 4. CURRICULUM

4.1. FACTUAL INFORMATION

In 2005, the National Curriculum was approved by the Ministry of Science and Higher Education based on the Higher Education Act. It specifies that curriculum for the Faculty of Veterinary Medicine should count 5130 hours, 330 ECTS and studies should last at least 11 semesters. This new, species-oriented curriculum includes 185 hrs of equine diseases, 245 hrs of farm animal diseases, 230 hrs of dogs and cats diseases and 90 hrs of poultry diseases.

The Attachment 109, which is a part of the law mentioned above, describes minimum requirements for veterinary education in Poland leading to the diploma of doctor of veterinary medicine (DVM). This title and diploma are in accordance to Law – the Regulation of Minister of Science and Higher Education from December 19, 2008 concerning types of professional titles awarded to university graduates and types of diplomas, and certificates issued by the University.

The Attachment 109 contains the list of skills which a veterinary graduate should obtain during studies and this list is in accordance to EU directive 2005/36/EU. Studies should last at least 11 semesters, minimal number of hours should not be lower than 5100 and minimal ECTS points lower than 330. These hours are divided into some groups of subjects. The first group comprises basic subjects including: Biology, Cell Biology, Biochemistry, Biophysics, Chemistry, Histology and Embryology, Animal Anatomy, Topographic Anatomy, Animal Physiology, Microbiology, Immunology, General and Veterinary Genetics, Veterinary Epidemiology, Pathophysiology, Veterinary Pharmacology, Pharmacy, Toxicology, Environmental Protection, Biostatistics and Methods for Documentation, Forensic Medicine and they cover not less than 1185 hours and 87 ECTS. The second group of subjects comprises: Agronomy, Breeding and Rearing of Farm Animals, Technologies in Animal Production, Feed and Food Hygiene, Dietetics, Etiology and Welfare, Veterinary Prevention, Veterinary Economics, Imaging Diagnostics, Clinical and Laboratory Diagnostics, Pathomorphology, General Surgery and Anaesthesiology, Parasitology and Invasiology, Diseases of Dogs and Cats, Diseases of Horses, Diseases of Farm Animals, Andrology and Artificial Insemination, Diseases of Poultry, Fur Animal Diseases, Fish Diseases, Beneficial Insect Diseases, and should cover at least 1785 hours and 130 ECTS. The Attachment 109 determines also obligatory extramural work, which is realized during summer vacations and includes Farm practice (80 h), Animal clinics (320 h) and Veterinary inspection practice (160 h) and covers 15 ECTS. In fact this document defines the ratio between theoretical and practical training which only partly can be changed by the Faculty

Council. Moreover, several hours should be devoted to humanistic subjects, foreign languages including Latin language, Work Safety and Ergonomics, Protection of Intellectual Property, physical education, Information Technology as well as 300 hours devoted to clinical training. The remaining 960 hours are at the disposal of faculties for their own decisions which are recommended by The Faculty Didactic Commission (DC) and confirmed by the FC. The current curriculum leading to the award of the degree in the veterinary medicine at the WUELS is based on the Attachment 109 of the Higher Education Act and is in agreement with Directive 2005/36/EU).

Generally, the curriculum covers all subjects required by 2005/36/EU and mentioned in Professional knowledge section such as: Practice management, Veterinary certification and report writing, Career planning and opportunities do not have adequate subjects in our curriculum but their contents are partly covered by other subjects and can be choose as electives.

The degree of freedom that the Faculty has to change the curriculum is limited to hours determined by the National Curriculum. The Faculty has no influence on the total number of hours and minimal number of basic hours ascribed to individual subjects. These numbers can be increased, but without any additional funds coming from the Ministry of Science and Higher Education, it means that the Faculty itself has to cover any additional expenses associated with increased number of hours. All decisions on curriculum matters and course content have to be approved by the Faculty Council. The person responsible for the subject elaborates detailed content of the course which should meet National Curriculum requirements. Then this project is discussed by the Didactic Commission and subsequently recommended to the Faculty Council.

Any changes to the balance between numbers of theoretical and practical teachings and on the allocation of hours between the various subjects have to be approved by the Faculty Council and the total number of hours cannot be less than determined by the National Curriculum.

4.1.1 POWER OF SUBJECTS AND TYPES OF TRAINING

4.1.1.1 POWER OF SUBJECT

Core subjects - taken by every student

Agronomy

Andrology and Artificial Insemination

Animal Anatomy

Animal Breeding and Husbandry
Animal Nutrition and Feed Quality
Animal Physiology
Avian Diseases
Avian Diseases Internship
Beneficial Insects Diseases
Biochemistry
Biology
Biophysics
Biostatistics and Methods of Data Collection
Cell Biology
Chemistry
Clinical and Laboratory Diagnostics
Diagnostic Imaging
Diseases of Dogs and Cats (infectious, surgery, internal, reproduction)
Diseases of Farm Animals (infectious, surgery, internal, reproduction)
Diseases of Horses (infectious, surgery, internal, reproduction)
Dogs and Cats Internship
Ecology and Game Animals
Environmental Protection
Ergonomy, Intellectual and Work Safety
Ethology and Animal Welfare
Farm Animal Internship
Fish Diseases
Fodder Hygiene
Food Sanitary Law
Forensic Veterinary Medicine
Fur-Covered Animal Diseases
General and Veterinary Genetics
Histology and Embryology
History of Veterinary and Deontology
Horse Internship
Hygiene of Food Processing
IT Technology

Laboratory Analytics
Latin Language
Marketing in Veterinary Practice
Milk Hygiene
Modern Language (English, German, Spanish and others on request)
Parasitology and Invasiology
Pathomorphology
Pathophysiology
Preventive Veterinary Medicine
Professional Ethics
Public Health Protection in State of Disaster
Safety of Feedstuff
Slaughter Animals and Meat Hygiene
Social Science
Sport/Physical Education
Surgery and Anesthesiology
Technologies in Animal Production
Topographical Anatomy
Veterinary Administration and Law
Veterinary Dietetics
Veterinary Economics
Veterinary Epidemiology
Veterinary Immunology
Veterinary Microbiology
Veterinary Pharmacy
Veterinary Pharmacology
Veterinary Toxicology
Zoonoses

Electives which each student must select from a list of permissible subjects

Anatomy of sensory organs
Anatomy of the stomatognathic system
Functional bases of endocrinology

Laboratory diagnostics in veterinary mycology
Clinical physiology
Physiology of fish
Physiological bases of gastroenterology and hepatology
Physiological bases of nephrology
Physiological principles of animal feeding
Histophysiology of organ motion
Histophysiology of sense Organs
Organogenesis, cell differentiation in organ
Parasitic diseases of ecosystems
Basis of veterinary haematology
Veterinary vaccinology
Dogs and cats nutrition
Practical parasitological diagnosis
Immunohistochemistry in pathomorphology and cancer
diagnostics
Practical anaesthesiology of dogs and cats
Clinical Analytics
Veterinarian as a veterinary forensic expert
Swine diseases
Exotic animals' diseases
Pathology of game animals
Veterinary dermatology
Histopathological diagnosis of the poultry diseases
Equine clinical pharmacology
Clinical Pharmacology of Dogs and Cats
Cardiology of Dogs and Cats
Nephrology and urology of Dogs and Cats
Veterinary neonatology
Neuropathology and clinical neurology
Veterinary ophthalmology
Oncology of Dogs and Cats
Veterinary oncology and biopsy technique

Veterinary care of dogs and cats reproduction
Orthopedics of horses
Orthopedics of Dogs and Cats
Parasitic zoonoses
Prophylactic programmes in industrial cattle and pigs' farms
Veterinary psychopharmacology
Non-invasive Stomatology
Selected issues of gastroenterology in horses, dogs and cats
Selected issues of pulmonology in dogs and cats
Management in Veterinary Practice
Laboratory diagnosis of viral infection of horses
Field and laboratory diagnosis of honeybee diseases. Fight against diseases of the honeybee.
Veterinary advicement in large farms
Diagnostic ultrasound of small animals
Supervision of reproduction in dairy and beef cattle herds
Auditing of quality management systems in food industry
Poultry meat and egg hygiene and technology
Hygiene of wild game meat
Hygiene and technology of fish raw materials and fish products
Quality management in food industry
Practical aspects of control of reproductive performance of pigs in pig farm
Invasiological aspects of livestock (cattle, pigs, poultry)
Computer analysis of dairy herds
Exotic animals breeding
Kynology

Obligatory Extramural Work:

Farm Practice, after 4th semester (80 hrs)
Animal Clinics Practice, after 8th semester (160 hrs)
Veterinary Inspection Practice after 8th semester (80 hrs)

Animal Clinics Practice, after 10th semester (160 hrs)

Veterinary Inspection Practice after 10th semester (80 hrs)

4.1.1.2. TYPES OF TRAINING

The Faculty provides all types of training within two main groups: theoretical and practical. The National Curriculum determines the total number of hours ascribed to specific subjects. The person responsible for the subject specifies the distribution between theoretical and practical teaching. The Faculty Council approves this distribution.

4.1.2 UNDERGRADUATE CURRICULUM FOLLOWED BY ALL STUDENTS

4.1.2.1 CURRICULUM HOURS

Table 4.1 **General table of curriculum hours taken by all students**

Year	Hours of training							Total
	Theoretical training			Supervised practical training			Other (G)	
	Lectures (A)	Seminars** (B)	Self-directed learning* (C)	Laboratory and desk-based work (D)	Non-clinical animal work (E)	Clinical Work (F)		
First	310	-		230	225	-	135	900
Second	285	55		160	145	-	140	785
Third	350	15		255	195	65	30	910
Fourth	395	15		235	160	360	-	1165
Fifth	295	15		210	110	490	-	1120
Sixth***	-	30		20	20	180	-	250
Total	1635	130		1110	845	1105	305	5130

*according to the national regulations, these hours are not included into the curriculum, therefore they are showed separately;

** Number of seminar hours depends much on elective courses chosen by each student

***On sixth year of study every student is obliged to take part in three internships and to take at least 5 electives. Total number of ECTS points has to be 30. Lectures and other kind of activity hours depends on chosen elective courses. Total number of hours that student has to complete during education process to obtain the title veterinary surgeon is 5130.

Table 4.2. **Curriculum hours in EU-listed subjects taken by each student¹**

Subject	Theoretical training			Supervised practical training			Other (G)	Total
	Lectures (A)	Seminars (B)	Self-directed learning* (C)	Laboratory and desk-based work (D)	Non-clinical animal work (E)	Clinical Work (F)		
Basic subjects								
Physics	15			15				30
Chemistry	15			30				45
Animal biology	8			8	8			24
Plant biology	7			7	7			21

Biomathematics	-			60	15			60
Total number of hours	45			120	30			195
Basic Sciences								
Anatomy (inc. histology & embryology)	120				225			345
Physiology	60			30	60			150
Biochemistry, cellular biology	90			90				180
Genetics	15			15				30
Pharmacology & pharmacy	45			90				135
Toxicology inc. env. pollution	40			50				90
Microbiology	60			75				135
Immunology	29	15		15		16		75
Epidemiology		30						30
Professional ethics	15							15
Total number of hours	474	60		365	285	16		1185
Clinical sciences								
Obstetrics	60				10	60		130
Pathology	150			30	105			285
Parasitology	45			30	30			105
Clinical medicine & surgery	85				30	533		648
Clinical lectures on various domestic animal	270			20	20	220		530
Field vet. med. (ambulatory clinic)						300		300
Preventive medicine	30			10	20	30		90
Diagnostic imaging	15			10	10	25		60
Reproduction & reproductive disorders	40				10	45		95
Veterinary state medicine & public health				30				30
Veterinary legislation & forensic medicine	30	15		15				60
Therapeutics ²								
Propaedeutics (inc. laboratory diagnostic methods)	75			75		10		160
Total number of hours	830	15		220	235	1223		2493
Animal production								
Animal production	15			15				30
Animal nutrition	60	40		35				135
Agronomy	15							15

Rural economics		15						15
Animal husbandry	15			25	112			152
Veterinary hygiene	15	10			5			30
Animal ethology & protection	15	15						30
Total number of hours	135	80		75	117			407
Food Hygiene/ Public Health								
Inspection & control of animal foodstuffs & feedstuff prod. unit	55			20	136			211
Food hygiene & technology	60			20	40			120
Food science inc. legislation	15	15						30
Practical work					214			214
Total number of hours	130	15		40	390			575
Professional Knowledge								
Practical management	30							30
Veterinary certification & report writing ²								
Career planning & opportunities ²								
Total number of hours	30							30

¹ FVM curriculum is divided in a little bit different way than in table.

² There are no such subjects like presented in table but the contents are implemented in many other subjects in the curriculum.

Table 4.3. Curriculum hours in EU-listed subjects offered and to be taken as electives

Subject	Theoretical training		Supervised practical training			Other	Hours to be taken by each student per subject group
	Seminars	Self-directed learning*	Laboratory and desk-based work	Non-clinical animal work	Clinical Work		
Basic Sciences	A	B	C	D	E	F	
Anatomy of sensory organs	15						15
Anatomy of the stomatognathic system	8			7			15
Functional bases of endocrinology	30						30
Laboratory diagnostics in			15				15

veterinary mycology							
Clinical physiology			30				30
Physiology of fish			10	5			15
Physiological bases of gastroenterology and hepatology			20	10			30
Physiological bases of nephrology			20	10			30
Physiological principles of animal feeding	24			6			30
Histophysiology of organ motion	10			5			15
Histophysiology of sense Organs	10			5			15
Organogenesis, cell differentiation in organ	15						15
Parasitic diseases of ecosystems	10		5				15
Basis of veterinary haematology	20		10				30
Veterinary vaccinology	8		22				30
Dogs and cats nutrition	15		15				30
Practical parasitological diagnosis	5			10			15
Immunohistochemistry in pathomorphology and cancer diagnostics	5		10				15
Clinical Sciences							
Practical anaesthesiology of dogs and cats	15				15		30
Clinical Analytics			30				30
Veterinarian as a veterinary forensic expert			15				15
Swine diseases	15				15		30
Exotic animals' diseases			15		15		30
Pathology of game animals	15		10		5		30
Veterinary dermatology	20				10		30

Histopathological diagnosis of the poultry diseases			10		5		15
Equine clinical pharmacology			30				30
Clinical Pharmacology of Dogs and Cats	6		24				30
Cardiology of Dogs and Cats	20				10		30
Nephrology and urology of Dogs and Cats	20				10		30
Veterinary neonatology	15		5		10		30
Neuropathology and clinical neurology	10		10		10		30
Veterinary ophthalmology	5				10		15
Oncology of Dogs and Cats	20				10		30
Veterinary oncology and biopsy technique			10		5		15
Veterinary care of dogs and cats reproduction	15		5		10		30
Orthopedics of horses			10		20		30
Orthopedics of Dogs and Cats	15				15		30
Parasitic zoonoses	15						15
Prophylactic programmes in industrial cattle and pigs' farms	10		10		10		30
Veterinary psychopharmacology	30						30
Non-invasive Stomatology	20				10		30
Selected issues of gastroenterology in horses, dogs and cats	10				20		30
Selected issues of pulmonology in dogs and cats	15				15		30
Management in	15		15				30

Veterinary Practice							
Laboratory diagnosis of viral infection of horses	5		5		5		15
Field and laboratory diagnosis of honeybee diseases. Fight against diseases of the honeybee.	5				10		15
Veterinary advicement in large farms	10		10		10		30
Diagnostic ultrasound of small animals			15		15		30
Supervision of reproduction in dairy and beef cattle herds	15				15		30
Practical anaesthesiology of dogs and cats	15				15		30
Veterinarian as a veterinary forensic expert			15				15
Food Hygiene/Public Health							
Auditing of quality management systems in food industry	3		12				15
Poultry meat and egg hygiene and technology	5		5	5			15
Hygiene of wild game meat	5		5	5			15
Hygiene and technology of fish raw materials and fish products	2		13				15
Quality management in food industry	6		24				30
Animal production							
Practical aspects of control of reproductive performance of pigs in pig farm	20			2	8		30

Invasiological aspects of livestock (cattle, pigs, poultry)	10			5			15
Exotic animals breeding				30			30
Kynology	12			18			30

Table 4.4. Curriculum of FVM in Wrocław – see Annex 1

4.1.3. FURTHER INFORMATION ON THE CURRICULUM

In the curriculum there is no defined “tracking” system. The innovative aspect of the teaching program is the presence of elective subjects which allow students to choose those subjects they are particularly interested in. It should give them a broader background in certain subjects and help to make future choices.

Seminars, laboratory and desk based work, non-clinical animal work and clinical work are obligatory for all students. Student’s attendance is checked at the beginning of each classes. Students are required to attend at least 80% of these activities within each subject in order to be eligible to sit for any exam or pass. Participation in the clinical rotations is obligatory and 100% participation is required; students keep their “Book of clinical rotations” indicating the type of activity and the signature of the supervisor of any particular activity. Lectures are not obligatory but their attendance is advisable.

The practical intramural clinical training is provided through clinical rotations:

- they are a structured, obligatory part of the training given to all undergraduate student,

- total number of hours of clinical rotations is 300, - they occur during semester 10 and 11 (year 5th and 6t h).

Areas covered:

- Farm animal diseases - 90 h,
- Horse diseases - 90 h,
- Dog and cat diseases – 90 h,
- Poultry diseases - 30 h.

Attendance: Part of the day; students are expected to perform all necessary clinical work including clinical examination, taking samples for laboratory tests, prescribing and administering medications etc., under tight supervision of the teacher.

4.1.4. OBLIGATORY EXTRAMURAL WORK

Students of the degree curriculum of veterinary medicine have to complete a total of 14 weeks of extramural work. This extramural work does not denote courses, but is destined to

constructively complement professional preparatory training or scientific training and serves the acquisition of skills as well as the preparation for future professional practice. Students complete their extramural work during holidays.

2 weeks of agricultural training at the farm or a comparable institution after 2nd year of studies after successful completion of exam of the subjects such as Animal Husbandry and Animal Nutrition.

4 weeks of food inspection practice at a slaughterhouse as well as meat processing plants after completion of all courses of basic training in food sciences and veterinary public health services after 4th and 5th year of studies respectively 8 weeks of extramural work with a veterinarian, in one of the animal clinics of the faculty or at a similar institution of the student's choice after 4th and 5th year of studies respectively. Students have to collect the documentation of practical training in especial training books, which they obtain before training. On the basis of this books and student's knowledge they have to pass the exam after finishing of practical clinical and food hygiene training.

The practical training program for students after 4th and 5th year of study in veterinary clinic:

1. Internal medicine

- basic diagnostic procedures- practical training;
- simple interventions (s.c, i.m., i.v.- injections, cava pleura and peritoneum punctures, catheterization of urinary, infusion into rectum);
- introduction about main pharmaceuticals used in veterinary therapy;
- interpretation of the results of additional examination (blood morphology, urine, blood biochemical, EKG);
- the practical information about procedures of therapy the most often observed internal diseases.

2. Veterinary surgery

- local and general analgesia procedure;
- bandages installation and preparation;
- a simple no complicated surgery in animals training;
- accompaniment to small surgery (general surgery, ophthalmology, orthopedic, dentistry;

3. Veterinary reproduction and gynecology

- the diagnostic procedures of pregnancy (palpation, USG, pregnancy tests) and reproductive diseases;
- preparation of simple gynecologic and obstetrics surgery;
- Accompaniment to simple gynecologic and obstetrics surgery;

4. Infectious diseases

- the diagnostic methods the most often infectious diseases;
- the procedures of prophylaxis of infection diseases;
- the methods of elimination and procedures among diseases eliminated by official government's legislation;

5. Radiology

- advantages and disadvantages of radiological examination;
- the procedures of radiological and USG examination, the patient preparation;
- the interpretation of RTG and USG pictures;

6. Disease's Documentation

- the health documentation, sheets and computer evidence of patients;

7. Among organization and administration procedures

- the rules of organization of work in practical training place;
- the practical information about patients registration and evidence systems;
- the practical training about pharmacy- evidence, storage etc.;

Table 4.5: Obligatory extramural work that students must undertake as part of their course

Nature of work	Minimum period		Maximum period		Year in which work is carried out
	hours	% of total study time	Hours	% of total study time	
Farm Practice	80	1,57			After 2 nd
Animal Clinics Practice	160	3,14			After 4 th
Veterinary inspection practice	80	1,57			After 4 th
Animal Clinics Practice	160	3,14			After 5 th
Veterinary inspection practice	80	1,57			After 5 th

4.1.5. SPECIFIC INFORMATION ON THE PRACTICAL TRAINING IN FOOD HYGIENE/PUBLIC HEALTH

The Faculty has signed agreements with 9 slaughter houses and meat processing plants.

Official Veterinary also helps to arrange visits in meat and milk processing plants.

Food processing plants are located 30-150 km from Faculty. These are pork, beef, fish and poultry cutting, deboning and processing plants.

Slaughterhouses (pigs, cattle, poultry) and dairy plants are located 150 km from Wrocław. Close to Wrocław there are no big slaughterhouses suitable for classes with students.

External training on food technology takes place in meat processing plants in summer semester (year 5th). Students visit them from 8 a.m till 2 p.m. Every time 2 groups of students come (every group consists of 20 students). During visiting the processing unit students are divided into smaller groups. Students are accompanied by 2 teachers. Every group of students come to meat plants twice, every time to another plant (1- meat processing plant, 2- poultry slaughter-house). Students during visit are accompanied not only by 2 teachers but also by official veterinarians and technologists from the plant. They are taught about technological processes, leading the inspections, monitoring Critical Control Points, GMP/GHP rules, etc.

Training of meat and slaughtered animals hygiene and milk and dairy products hygiene are limited to 2 longer visits to plants. During summer semester (4th year) students leave for 3 days out of Wrocław to the place where there are some slaughterhouses (cattle and pig) and dairy plant. Students are divided into group of about 10 people and are supervised by teachers and veterinary inspectors. They are taught about animal welfare (during transport and in the slaughterhouse), pre- slaughter management, ante- and post mortem examination, documentation, laboratory examination of meat, quality management systems, Good Manufacturing and Hygiene Practice, organization of meat plants, slaughtering steps.. The second visit takes place at the beginning of 9th semester (5th year). This is one day visit in slaughter house, where students pass exam on practical skills of post-mortem examination of carcasses.

The Department provides disposable clothing for all student for each visit in meat processing plant. According to GMP/GHP rules prior to entering slaughterhouse or meat processing plant student is obliged to sign the statement about his/her health status.

The Faculty has an access to the cows and pigs slaughterhouses. They are for EU market approved. The distance from Wrocław to these plants is about 150 km.

Meat processing plants and poultry slaughterhouses are located 30 to 150 km from Faculty. These are medium or big size plants. They are for EU market approved, they are modern, they have HACCP system implemented and also another quality management systems certificated (as BRC, ISO 22 000). Students are able to visit cutting, deboning units, production of sausages, hams, cans and poultry slaughtering and processing.

During the training of food hygiene students of the 5th year make organoleptic examination of food of animal origin such as: fish and fishery products, sausages, eggs, meat cans. The samples for these examinations are bought at the local shops and supermarkets.

4.1.6.1 GENERAL INDICATORS TYPES OF TRAINING

			Denominator
R 6:	$\frac{\text{Supervised practical training}}{\text{Theoretical training}} =$	$\frac{3060}{1765}$	1,73
R 7:	$\frac{\text{Labor atory and desk based}}{\text{Clinical work}} =$	$\frac{1955}{1105}$	1.769

4.1.6.2. Special indicators of training in food hygiene/public health

R 9:	$\frac{\text{Total no. hours vet. curriculum}}{\text{Total no. curric-hours Food Hyg.}} =$	$\frac{5130}{310}$	16,54
R 10:	$\frac{\text{Hours obligatory extramural work}}{\text{Total no. curric-hours Food Hyg.}} =$	$\frac{160}{310}$	0,51

4.2. COMMENTS

Currently in Poland the number of retired veterinarians is balanced by the number of graduates and the majority of graduates are able to find employment. Simultaneously, the demand for official veterinary services is increasing due to the introduction of different programs aiming at prevention of infectious diseases, enhancing food produce hygiene, supervising food processing and others. In Poland, there is no tracking system or other differentiations during undergraduate studies.

There is a holistic approach to student education and after 2 years of clinical work, the graduate may choose one of 17 specialities offered by the state commission for veterinary medicine specialisation, which is a division of the State Veterinary Chamber. In his way, the

educational process extends over the next 4-6 semesters. Thus, it is the specialists who determine the level of veterinary proficiency in Poland. These people appoint veterinarians to specialistic clinics for companion animals, horses, cattle, pigs, certain sectors of state veterinary inspection concerned with public health, food hygiene and anti-zootic prevention. The above mentioned specialistic courses may, by European standards, be accepted as certified specialistic courses.

Privatisation of state agricultural farms and structural changes in private agriculture have led to the decrease in the population of farm animals. Simultaneously, UE market demands and the necessity to comply Polish agriculture with EU legislation, for example, biosecurity standards, have limited access to farm animals, slaughter houses and meat and food processing industries. Consequently, the ratio between practical and theoretical courses have changed in favour of the latter.

4.3. SUGGESTION

It seems necessary to develop a system of regular, continuous curriculum revision. The Faculty authorities' efforts should be focused on the cooperation in this matter with other Faculties of Veterinary Medicine and the National Veterinary Chamber, and exerting pressure on the legislative bodies to introduce necessary, if any, changes of the National curriculum.

CHAPTER 5. TEACHING AND LEARNING: QUALITY AND EVALUATION

5.1. FACTUAL INFORMATION

5.1.1. THE TEACHING PROGRAM

The coordination of teaching between different departments, sections and services is generally supervised by the Dean for Student Affairs. He collects all comments on the teaching program from different years and, if it is necessary, prepares proposals discussed subsequently by the Faculty Council. There is also Commission for Study Curriculum. This Commission recommends desirable changes of the teaching process to the Faculty Council. The authorized representatives of the Dean are responsible for organizing and controlling extra-mural practical clinical trainings and practical extra-mural trainings in slaughter animals and food hygiene.

Problem-Based Learning- mainly it is made in form of seminars during which students are expected to analyze the problem based on the materials provided or indicated by the teacher. Then their findings are discussed in groups. In some cases they have to prepare a description of the problem and pass a kind of oral assessment.

Computer-Assisted Learning: includes computer-based subjects, such as biostatistics and IT Technology. The Faculty uses e-learning as an auxiliary technique. Since 2009 teachers can place all materials for students on the MOODLE Platform called Eduwet (<http://www.wet.up.wroc.pl/edu>). All subjects are also available on this platform in English for English Division and Erasmus students. Students can be in touch with teachers thanks to this platform or just using normal e-mail addresses.

The extent to which course notes supplement or substitute for the use of veterinary textbooks: in general, course notes are widely used, but in those subjects where there are alternatives in the form of textbooks, the students themselves choose what they want to choose. The number of subjects in which the reading matter primarily consists of hand-made notes is limited and concerns the subjects with no recommended textbooks. Many useful handouts are available for students on Eduwet platform.

There are several arrangements between the Faculty and outside bodies established to support the practical training of undergraduate students. They include farms, hatcheries (see 7.1.8.2),

slaughterhouses, and food processing plants (see 4.1.5. and 7.1.4). To ensure a proper quality of practical teaching all students participate in practical training conducted in these locations (for full list of slaughterhouses and food processing plants available for educational purposes go to the State Veterinary Inspection website:

http://www.wetgiw.gov.pl/files/1969_Lista%20zakładów%20umozliwiających%20staż_08.03.2010.xls

Moreover, every year the Faculty makes formal agreements with outside farms, practitioners, institutions, slaughterhouses and meat processing plants to assure a sufficient number of places for clinical and food hygiene classes and practices.

The Faculty's study program fully includes the teaching of day one skills (DOS). In order to support the teaching of DOS, lists of acts and activities comprising DOS were compiled for autonomous DOS subjects in which skills are taught. The student is obliged to undergo the DOS training within the subject, and the teacher is obliged to confirm in a special document (credit book) that such training took place and that student was taught of these skills. DOS were incorporated into the each syllabus of individual subjects and in general curriculum.

5.1.2. THE TEACHING ENVIRONMENT

Mostly the permanent academic positions is generally possible after the candidate completes his/her Ph.D. studies (there are also assistants employed for 8 years) . These studies include an obligatory course of teaching techniques.

Every year Faculty authorities propose to the Rector the teacher/teachers who can be rewarded with the annual Reward for Outstanding Teaching Achievements.

Every two years every university teacher is evaluated by Faculty's Commission for Teachers' Evaluation. One of the thing which is taken into consideration during this evaluation is teaching (others are scientific research and organization work).

Students from Veterinary faculty can also choose the best teacher who will be awarded with special reward.

5.1.3. THE EXAMINATION SYSTEM

The examination system rules are established by the general Statute of University policy (available at the website); there is no separate Faculty examination policy.

During each academic year there are 2 periods for examination. Each by end of the semester and each session lasts 2 weeks. There is winter session at the end of January/beginning of February and summer session at the end of June/ beginning of July. The precise dates of exams are set in consultation with student council.

Examination are performed in written form, as a multiple- choice questions, oral, practical (for example: anatomy, histology, microbiology, pathology, meat hygiene, clinical subjects). There is a free choice of the Department to decide about form of exam to choose.

There are 2 attempts for examination. If both failed there is a possibility for student to ask for the third attempt called "collective exam". Dean is in charge to decide in each case individually.

According to the University policy, all exams should be passed before the beginning of the next semester. In some situations Dean can allow student to begin a new semester and pass an exam later. Some subjects (and examinations, for example on anatomy, histology and embryology, physiology, pathophysiology) are indispensable before starting clinical and meat hygiene subjects. When exam is held in a written form students are always allowed to have the right to look through results of their tests. Results of exam usually are announced to students in written form (on papers or via e-mail or intranet platform) but students are listed not by names but by credit book's numbers in order to protect personal data.

There are no external examiners so far. Sometimes official veterinarian from veterinary inspection is present during practical exams on meat hygiene.

5.1.4. EVALUATION OF TEACHING AND LEARNING

National Accreditation Committee (NAC, the member of The European Association for Quality Assurance in Higher Education- ENQA) working as a body of Ministry of Higher Education assesses level of teaching in every higher education establishment. Every discipline is assessed every fifth year but if establishment obtains excellent mark assessment takes place every eight years. Before the visit starts every faculty is obliged to prepare self evaluation report according to standard operating procedures. Our Faculty was evaluated in 2004 and in 2012 and after each evaluation obtained excellent grade- the highest of possible. Next evaluation by NCA is planned in 2020.

University teaching quality evaluation. There are three levels of evaluation.

Level ONE- department level.

Head of the Department evaluates once a year every teacher from own department. The official report is prepared and given to Dean and to Faculty Commission for Evaluation of Teaching Quality.

Level TWO- faculty level

It is a faculty's tasks to evaluate teaching process according to courses programmes and standards. Faculty is responsible for organization and proper performance of courses and subjects. Faculty Commission for Evaluation of Teaching Quality leads such evaluation of each subject and each teacher (computer questionnaire, special computer technique for evaluation with using of remote controls, paper questionnaire). Always at least one of students representative is also the member of such Commission. At least once a year every subject and every teacher should be evaluated. The members of Faculty Commission make also lesson observations and prepare official reports for Dean after each visitation. The results of all evaluations are reviewed by Faculty Commission and delivered to Dean. If someone gets negative note after the evaluation is obliged to have conversation with Head of Department and Dean.

Students are also asked for their opinion about quality of teaching, access to equipment and teaching methods. There is special "Dean's Box" in the corridor close to the Dean's Office in which every student can put his/her remarks (also anonymous) about teachers, subjects, teaching methods, Faculty, etc. Two times in each semester there are meetings of Deans with student council during which arose problems are discussed and some suggestions are given.

There is also Faculty Commission on Curriculum. The members of this Commission evaluate and reviewed curriculum, all subjects and electives.

Each year graduates are asked to evaluate all study programme. Such answers can also have personal remarks.

Level THREE – University level

According to Rector ordinance dated 31 of March 2006 Commission of Teaching Quality Evaluation was created. The aim of that commission is to evaluate classes, didactic basis, document control, analyzing the quality of teaching, assessing ECTS coordination. Every year commission gives an report to Vice-Rector who announces the documents to the Senat. This Commission collects data from all faculties and results are taken into consideration when general schedule of classes is prepared.

Since last three years there have been introduced into a curriculum a very wide offer of elective subjects for veterinary students. Currently Faculty offers 62 elective subjects.

5.1.5 STUDENT WELFARE

To protect students from zoonoses the Faculty implemented special personal biosecurity policy. It bases on law regulations and is made with cooperation with University Health and Safety Work Section.

At the beginning of 1st year each student must attend an obligatory “course of safety” during which they are taught about general safety rules. Without passing this course, students are not allowed to attend any practical classes.

Before starting any practical class, students are informed about the dangers and risks associated with the training. They are instructed in details about how to deal with potentially dangerous materials including biological material of animal origin.

It is absolutely prohibited to touch any biological material without a permission of the teacher. It is forbidden to touch any other materials (for example, chemical reagents) without a permission. During practical laboratory classes or clinical training, students work under a teacher’s supervision. For each practical subject there has been developed a special instruction how to deal during classes. At the beginning of every practical class, students are informed in detail about methods used during exercises. During work with animals, students cannot do anything without the permission and supervision of a teacher. All facilities are under the supervision of the Work Safety Inspector and safety rules are in force in the particular classroom and available any time.

For clinical classes and classes on meat hygiene, microbiology, pathology, chemistry, etc, every student has personal protective clothing (white apron, cap, disposable gloves, and glasses-where it is applicable). During visits on farms, in slaughterhouses and meat processing plants students have disposable clothing. Before starting Food Hygiene subjects every student is obliged to undergo medical examination (specially to check if is free of Salmonella and Shigella pathogens).

Each laboratory (in which there are dangerous chemical reagents) is equipped with eyewasher and “safety shower” (where it is applicable).

Accommodation for students is well organized. There are 5 dormitories available for veterinary students. Generally University offers 2300 places in student dormitories. There are single, double and 3 person rooms. Students can attend extra activity like sports (University Sport Centre with swimming pool and many sections of sport, i.e. basketball, volleyball, basketball, tennis, two dance clubs, fitness, horse riding, etc.). These activities are free of charge for students. There is also available canteen and café at the University.

University and Faculty also provides various forms of social and financial support:

- social scholarships
- special scholarships for disabled students
- scholarships for outstanding scientific or sport achievements
- financial support to cover costs of accommodation
- emergency financial aid
- scholarships for outstanding scientific achievements funded by the Ministry of Science and Higher Education

Every teacher is obliged to have consultation hours for students. Some student associations are also available: IVSA and Erasmus Student Network. Lately at the University two units responsible for tracking the future career and job selection of graduates students have been established: University Career Bureau and Bureau for Tracking of Graduates Future. In this year a special software used for monitoring of quality teaching and graduates career has been introduced (<http://epak.edu.pl>) .

5.2. Comments

- University Teaching Quality Evaluation System is a new procedure (last 3 years) and, if properly used, can verify academic teachers which for sure will influence with positive way on teaching quality.
- Weak point of all evaluation procedure is almost invisible influence on persons who seem to be not good teachers. Some positions like professors are “untouchables”. Another weakness is that salaries does not depend even a little bit on evaluation result.
- Teaching is underestimated in Polish educational system. General evaluation of academic teacher depends only on scientific results (Impact Factor mainly) not on a teaching quality.

5.3. Suggestions

- In some cases the splitting on scientific and teaching staff would be a good idea.
- Better motivations (also financial) for best teacher and practitioners should improve the teaching quality.
- Some obligatory extramural training is associated with extra costs such as transportation; students suggest that all costs of this kind should be covered by the Faculty.
- It could be recommended to vaccinate all veterinary students against tetanus (in a childhood they were vaccinated but some kind of booster will be a good idea).

Chapter 6. FACILITIES AND EQUIPMENT

6.1. FACTUAL INFORMATION

6.1.1. PREMISES IN GENERAL

The Faculty of Veterinary Medicine occupies two buildings located at the Main Campus of the University at Norwida street and four clinics located at the same area. One building (for Department of Anatomy and Histology) is located in another campus at Biskupin (not far from Main Campus).

Main buildings were constructed before II World War and then renovated. The buildings of clinics were constructed after the war and also were renovated.

There are four clinics and clinical departments operating in our Faculty:

- Department of Epizootiology and Clinic of Bird and Exotic Animals - B1
- Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats- B2
- Department of Reproduction and Clinic of Farm Animals- B3
- Department of Surgery- B4

Map of Veterinary Medicine Buildings- Grunwaldzki Campus

A3- Main Building of the Faculty of Veterinary Medicine

B1- B4- Clinics and clinical departments

Map of Veterinary Medicine Buildings- Biskupin Campus

E3- Division of Animal Anatomy



Wrocław University of Environmental and Life Sciences



6.1.2 PREMISES USED FOR CLINICS AND HOSPITALIZATION

Table 6.1: Places available for hospitalisation and animals to be accommodated.

Regular hospitalisation	Species	No. places
	cattle	10
	horses	20
	Small ruminant	4
	pigs	18
	dogs & cats	15
	rabbits/hares	13
	poultry	3 rooms
	exotic animals	3 rooms
	snakes, spiders	1 room
	fish	1 room
Isolation facilities	Farm animal and horses	2
	Small animals	12

6.1.3. PREMISES FOR ANIMALS

Animal used for teaching are maintained mainly at each clinic. During a course of such subjects like Animal Breeding and Husbandry, Animals Reproduction, Internal Diseases of Farm animals, etc. students visit various farms. Two of them belongs to University (one located in Swojec, 10 km from Veterinary Main Campus, the second one in Radomierz- 65 from Wrocław). Veterinary students go also on other farms with which agreements were signed: Pawłowice (close to Leszno) - 85 km from Wrocław, Głogówek- 120 km from Wrocław, Przecza- 70 km from Wrocław, Dębołęka- 130 km from Wrocław) and to private farmers. Moreover, students have obligatory holiday extramural practice at the farms after the 2nd year of studies.

Small animal clinic hospital is divided into 3 divisions:

- small animal hospital at Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats.
- surgery hospital at Department of Surgery
- postoperative rooms in the Division of surgery and Department of Reproduction and Clinic of Farm Animals

The small animal hospital at Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats hospital has one room equipped in proper cages for normal dogs and cats for teaching purposes.

Two rooms equipped in proper cages for birds, poultry, exotic animals are placed at the Department of Epizootiology and Clinic of Bird and Exotic Animals.

Practical exercises with live poultry are arranged at 5 poultry farms: e.g: in Mikstat- 100 km from Wrocław, Niwki Książęce- 80 km from Wrocław, Niwki Królewskie- 75 km from Wrocław. Many birds are submitted for clinical examination by private farmers and vets.

The Faculty has also access to two fish farms: one is located in Milicz (Stawy Milickie- Milicz Ponds) 60 km from Wrocław and another one in Złoty Stok- located 100 km from Wrocław.

An apiary with 25 hives is located in Swojec- 10 km from the main campus. The apiary also has an apiary house with storage room for beekeeping equipment.

The Faculty owned also Centre for Treatment and Rehabilitation of Wild Animals in Złotówek. There are kept such animals as: ostriches, deers, wild hogs, falcons, hares, eagle. Students have there classes on wild games ecology and ethology, etc.

6.1.4 PREMISES USED FOR THEORETICAL, PRACTICAL AND SUPERVISED TEACHING

Table 6.2 Premises for clinical work and student training

Small animal	No. consulting rooms	12
	No. surgical suites	3
Equine and food animals	No. examination areas	5
	No. surgical suites	2
Exotic pets, small mammals and reptiles	No. examination areas	2
Pet and wild birds	No. examination areas	2
Poultry	No. examination areas	1
Bee	No. examination areas	2
Fish	No. examination areas	1

Table 6.3. Premises for lecturing

Number of places per lecture hall											
Hall:	Aula J.P II	VIII W	VR	VI R	IW	IIW	IIIW	IVW	VW	VIW	VIIW
Places:	540	182	220	200	175	130	130	100	100	60	94
Total number of places in lecture halls: 1931											

All lecture halls are equipped in:

- good quality multimedia projectors and screens
- computers,
- connections to own computer of lecturer,
- sound systems,
- whiteboards

Table 6.4: Premises for group work (number of rooms that can be used for supervised group work)

Room	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
Places	20	30	24	18	40	20	20	32	22	17	20	30
Total number of places in rooms for group work: 293												

Table 6.5 Premises for practical work (number of laboratories for practical work by students)

Room	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
Places	32	18	20	20	40	24	20	24	18	20	20	20
Total number of places in rooms for group work: 276												

Health and safety measures in place in the premises for practical work:

All rooms are equipped with safety regulations and all buildings are properly equipped with fire equipment and fire instructions.

Anatomy/histology: students who participate in classes in the dissection in the Department of Animal Anatomy are obliged to: wear protective medical clothes and use disposable rubber gloves

Classrooms are equipped with:

- a row of sinks with hot and cold water
- permanent containers filled with soap, disinfectant and paper towels
- hand dryers
- eye washer
- first aid kit
- the work conduct and emergency action instructions
- mechanical ventilation and air conditioning
- evacuation lights

Students who participate in the classes (histology, embryology) held in the microscope laboratory must work in protective medical clothes. The classroom is equipped with a sink with hot and cold water, a container with soap and paper towels.

Basic and Preclinical Sciences, Food Hygiene, Clinical Subjects: Students are allowed to take part in the practical training only if dressed properly in the cotton lab apron. Laboratory

trainings are performed under the supervision of at least one teachers depending on a subject and classes. During the first lesson, students are informed about the rules of safe laboratory Work rules. No eating or drinking is allowed. It absolutely prohibited touching any materials (including biological or clinical samples) and turning on any equipment without the permission and instructions of the teacher.

All classrooms are equipped with:

- sinks with hot and cold water
- liquid soap containers
- hand dryers or paper towels
- first aid kit
- safety instructions

Rooms for clinical work are equipped with devices increasing safety during work with animals: repressors for large animals, safety gloves for cats, muzzles for dogs, cages for small animals - dogs and cats.

Preliminary course of safe animal handling is performed during practical classes of "Animal breeding"- 2nd year of study, "Clinical diagnostics"- 3rd year and during the holiday extramural farm practice after the 2nd year of study. Detailed and intensive training on safety during work with dogs, cats, exotic and wild animals, farm animals is an integral part of the practical education and it is performed by the staff of clinical departments. Safety training is also performed before visits in slaughterhouses and foodstuff processing units. During visits, the students are obligated to wear required protective clothes. With regard to safety in radiology, students are trained during the course of Radiology how to safely work while taking an X-ray, including wearing protective lead clothing. Students are only involved in positioning the patient under the X-ray machine. While taking X-rays students have to exit the room with X-ray generator and be in the safe zone.

6.1.5. DIAGNOSTIC LABORATORIES AND CLINICAL SUPPORT SERVICES

There is no one central laboratory at the Faculty. Each clinical department and some of other departments have diagnostics laboratories. Each laboratory apart of standard laboratory equipment is equipped also in some more specific and sophisticated devices, e.g.:

Department of Reproduction and Clinic of Farm Animals- some important equipment:

Biochemical analyzer for blood- Reflovet Plus, haematology analyzer-Mindray BC-

2800VET, semen analyzer- Hamilton Thorne Biosciences (IVOS), stereoscopy microscope, microplates reader Elx800 (BioTek), analyzer for hormones miniVIDAS (Biomerieux), flow cytometer (Guava EasyCyte5), thermocycler for Real Time PCR CFX96 (Bio-Rad), micromanipulator for embryos ICSI Narishige MM-89, Ultrasound MY Lab ONE Color Doppler (ESOATE), ultrasound Easy Scan-5 places, Fiberscope Q10.

Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats- some important equipment: Fiberscope Olympus GIF XQ – 20, Bronchofiberscope Sure Vision, Ureterorenofiberscope Storz, ultrasound USG ALOKA ProSound 3500, Nikolet Viking Quest for electrodiagnostics, MRI, Computed tomograph (CT), Electroencephalograph EEG-1200 A, X-ray Gierrth HF 200 A with modern computer software for anatomical x-ray, dental x-ray CR 7 VET, surgery laser CO2 UML – 25 (BTL Polska), Echocardiograph Prosound Aloka SSD 4000 SV, Holter EKG AsPEKT 702 v.001 and holter Rozinn, fluoroscope C Ziehm 8000, Lancetron GT 300, Ultrasound Terason t3000, biochemical analyzer Konelab prime 30i, animal blood counter ABC Vet, biochemical analyzer Maxmat, Idexx laser cyte for blood morphology.

Department of Surgery- some important equipment: Computed tomograph (CT) Siemens Somatom Emotion 16 row, direct radiography, Doppler Ultrasound SAOT MyLab class C, digital x-ray Siemens Polydoros, x-ray for large and small animals, endoscope, arthroscope.

Department of Epizootiology and Clinic of Bird and Exotic Animals- some important equipment: flow cytometer, thermocycler for PCR, ELISA, fluorescent microscope, laminar chamber.

Department of Food Hygiene and Consumers Health Protection- some important equipment: HPLC, Spektrophotometer UV-Vis Cary 100 (Varian), Real-Time PCR IQ-5 (BioRad), Thermocycler MJ-Mini (BioRad), laminar chamber, devices for electrophoresis Sub-Cell 192 (BioRad) and TGGE i DGGE - DCode (BioRad).

Division of Biochemistry: special device for in vivo fluorescence and luminescence imagery “NIGHT OWL”.

Our diagnostics laboratories located in different departments check around 40.000 samples per year.

6.1.6. Slaughterhouse facilities

These are slaughterhouses which slaughter cattle and pigs. The Faculty has signed agreements with these premises. Our students have access to two cattle slaughterhouses (one slaughters 60 cows per day, the second premise slaughters 250 cows per day) and to two pig slaughterhouses: one for 150 pigs per day, the second- 500 pigs per day. All premises are for EU market approved and have implemented HACCP system and also other quality management systems required by big retailers (IFS, BRC). They are located in Sława (lubusz voivodeship). The distance from Wrocław to these plants is about 130 km. Students spend there 3 days (one day in pig slaughterhouse, one day in cattle slaughterhouse and one day in dairy plant). Slaughterhouses for poultry are located from 60 to 150 km from Wrocław. They are modern, medium or big size, all are for EU market approved and have implemented HACCP and some of them also other systems such as: ISO 22 000, BRC, IFS. Close to Wrocław there are no big slaughterhouses suitable for classes with students.

6.1.7. Foodstuff processing unit

Meat processing plants are located 50 to 100 km from Faculty. These are meat processing plants mainly medium and big size, quite modern. They are for EU market approved, they have HACCP system implemented and some of them also other systems such as: ISO 22 000, BRC, IFS. Students are able to visit cutting, deboning, production of sausages, hams, cans.

6.1.8 Waste Management

Biological waste material including cadavers, are stored in the special cooled room at the pathology unit and transported to utilization by a specialized utilization company. Syringes, needles, and other “single use” equipment is stored in special containers at each clinic and transported and utilized by other specialized company. The Veterinary Faculty produces waste material such as animal cadavers, body parts and organs from dogs, cats, cows, sheep, horses, pigs and birds. The waste material is collected into disposable plastic bags and stored in special, properly marked containers provided by the above mentioned company. The Faculty has an official agreements with companies which handle with such specific wastes. These companies remove wastes on regular basis and always on demand. The containers for wastes are kept in a separate, tightly locked room in temperatures below 10°C. The room is disinfected regularly after disposing of the waste material. Before the waste material is taken away, it is weighed and it is also documented. The Faculty cooperates with a company specialized in collecting and utilizing animal

tissues (there is official agreement signed with company: ECO ABC from Bełchatów). A representative of the company issues a documents confirming the receipt of the previously determined mass of the waste material. The documents also state the date and hour of the last time the vehicle was washed and disinfected.

The sewage from clinics is drained to the dedicated animal sewage system. In case of isolation facilities, the sewage is subjected to the chemical disinfection using a special disinfection facility.

6.1.9 Future Changes

Lately the plan for construction of new clinic for large animal in the outskirts of Wrocław has been developed. The construction of new centre for research on animals is also planned.

6.2 Comments

- Most of Faculty's buildings have been lately renovated.
- Equipment is in general sufficient. However, it is necessary to supplement some premises with some new equipment.
- All buildings are maintained well by University services. General equipment is under supervision of University technical service. More sophisticated diagnostic and laboratory equipment is serviced by authorized companies.

6.3. Suggestions

The Faculty needs more funds for teaching purposes (transport, waste utilization, diagnostic equipment, pharmacy materials, surgical tools, multimedia articles) which are often financed from our veterinary services or our own pockets.

There is also a need to purchase a new equipment for teaching purpose (microscopes, reagents, special computer software).

Additional funds for transportation of students to the slaughterhouses, food processing plants and farms situated outside the Wrocław and some changes in the student timetable would be desirable.

It will be also very good idea to use for didactic purpose also special 3D virtual teaching equipment.

At present, it seems that the number of technicians in many Divisions is inadequate to the needs and should be increased in the future.

CHAPTER 7 ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

7.1 FACTUAL INFORMATION

7.1.1 ANATOMY

The Department Animal Physiology and Biostructure possesses complete sets of bones and skeletons of various animal species which are used in student trainings. Live animals come from farms belonging to WUELS. Dog cadavers are obtained from the clinic of the Faculty and from private clinics in the Wrocław area (euthanized animals). Large animals (sheeps, cattle or horses) cadavers are obtained from the small farmers from the Wrocław area. In general, cadavers of healthy animals and animals which died from noninfectious diseases have been used. Parts of the body and internal organs are also obtained from the whole cadavers used in the practical training and they are also purchased from the slaughterhouse in Rawicz. Poultry cadavers are purchased from poultry breeding companies. Some cadavers and internal organs are used in the fresh state (exenterations) and some cadavers of dogs and parts of large-animal cadavers are preserved in formaldehyde solution.

Table 7.1.: Material used in practical anatomical training

	Dog			Ruminant			Equine			Rother (cat)		
	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
Live animals	36	36	36	36	36	36	18	18	18	36	36	36
cadavers	35	32	31	1	1	1	1	1	1	3	5	2
specimen	36	36	36									
Horse's legs												
Poultry	36	36	36									
Eg ultrasound	36	36	36									

7.1.2 PATHOLOGY

The corpse of companion, exotic and farm animals are delivered from Clinics of Faculty of Veterinary Medicine, from veterinary clinics in Wrocław and surrounding cities and by the owners and breeders themselves.

The material obtained during autopsies is used for practical classes with students (histopathology and cytopathology labs).

The post mortem examination is performed both in the Division of Pathomorphology and during the visits on the farms.

Table 7.2. Number of necropsies over the past 3 years

SPECIES		NUMBER OF NECROPSIES		
		2012/2013	2013/2014	2014/2015
Slaughter animals	Cattle and small ruminants	50	101	70

	Pigs	25	19	136*
	Equine	6	6	7
Companion animals	Dogs	70	54	68
	Cats	39	47	42
	Others (pets)	111	195	148
Other animals (e.g. poultry, exotic)		182	117	61
Wilde ruminants		3	4	2
Bear		1	1	1
Hare		12	-	-

*no of necropsis is connected with research program with student's participation

Moreover, the histopathological examinations are performed. Their number gradually increases. In the last years there were:

4100 examinations (2012)

4590 examinations (2013)

5619 examinations (2014)

4803 examinations (until September 2015)

7.1.3 ANIMAL PRODUCTION

Availability of production animals for the practical students's teaching:

* WULS Agricultural Experimental Facility Swojec

* WULS Agricultural Experimental Facility Radomierz

* The Faculty also has arrangements with other farms and stables listed in the paragraph 7.1.8.2.

7.1.4. FOOD HYGIENE/PUBLIC HEATH

On account of recent economical changes in Poland, a large slaughterhouse and other food processing plants in Wrocław were closed. Most of the remaining firms or companies involved in the production of food of animal origin were privatized and access to them is more difficult than before. Teachers of the Department of Food Hygiene and Consumer Health Protection they defeated this the problem with good relations with Veterinary Inspection and meat producers as well as organizational efforts. Therefore, availability of farm animals and products of animal origin seems to be adequate for the practical teaching of students. Slaughterhouses and food processing plants available for our students are listed 6.1.6. and 6.1.7.

7.1.5 CONSULTATIONS AND PATIENT FLOW SERVICES

7.1.5.1 CONSULTATION

Clinic for dogs and cats

Monday-Friday between 9 a.m. and 10 p.m.

Saturday-Sunday, Christmas, Easter and statutory holidays between 10 a.m. and 6 p.m.

Consulting room:

- dermatology and endocrinology
- nutrition and food hygiene
- gastroenterology and endoscopy
- cardiology
- nephrology and dialysis
- neurology
- oncology
- rehabilitation
- density

Admission as a patient is by prior arrangement by the phone .

Horse Clinic:

Monday-Friday between 8 a.m. and 7 p.m.

Saturday-Sunday, Christmas, Easter and statutory holidays between 10 a.m. and 1 p.m.

In case of an emergency during the night.

Clinic of Surgery:

Monday-Friday between 8 a.m. and 7 p.m.

Saturday-Sunday, Christmas, Easter and statutory holidays between 10 a.m. and 1 p.m.

Clinic of Animal Reproduction and Farm Animals:

Monday-Friday between 8 a.m. and 6 p.m.

Saturday-Sunday, Christmas, Easter and statutory holidays between 9 a.m. and 1 p.m.

Clinic of Epizootiology and Clinic of Birds and Exotic animals:

Monday-Friday between 8.30 a.m. and 2 p.m.

Monday, Wednesday, Friday between 3 p.m. and 6 p.m.

Saturday-Sunday, Christmas, Easter and statutory holidays are closed

Diagnostic Laboratory Epi-Vet:

Monday-Friday between 8.30 a.m. and 3.30 p.m.

Veterinary Laboratory UNI-LAB:

Monday-Friday between 8.30 a.m. and 3.30 p.m.

Saturday-Sunday, Christmas, Easter and statutory holidays between 11.00 a.m. and 6.00 p.m.

7.1.5.2. PATIENT FLOW

Table 7.3 Number of cases: a) received for consultation, and b) hospitalized in the Faculty clinics, in the past three years.

Species	Number of cases						Average
	2012		2013		2014		
	a	b	a	b	a	b	
Bovine	559	3	500	8	581	5	Food producing: 1610
Ovine, caprine	0	-	105	6	7	2	
Porcine	2818	23	140	3	69	1	
Poultry, pet birds	76	1	642	14	71	2	1344
Rabbit, pet rodents, small mammals	771	30	1065	32	1300	29	
Equine	302	17	397	19	368	14	372
Canine	7183	71	7466	65	6975	60	Companion animals: 10754
Feline	3058	15	3641	11	3313	9	
Reptiles & amphibians	106	10	121	8	140	11	
Wild animals	29		48		29		35
Bees in own apiary	-		41 bee colonies		43 bee colonies		42

7.1.6 VEHICLES FOR ANIMAL TRANSPORT

The Faculty Clinics have two vehicle (Dacia Logan and Fiat Doblo), used for the transportation of sick small animals to the clinics and one trailer used for the transportation of sick horses and cows of other large animals. Horses are often bringing to the clinics by owners with their vehicles. The transport costs are incurred by the clients, excluding the cases when an animal is transported for special teaching or scientific purposes. In those cases, the transport costs are covered by the Faculty.

7.1.7 ON-CALL EMERGENCY SERVICE

The notification center of the on-call emergency service has place in Department of Reproduction and Clinic of Farm Animals. The notifications are receive on the phone by the veterinarian on duty (the number is 71 3205 318 and is listed on Faculty's of Veterinary Medicine website). A list of veterinary surgeons is listed in the hall of Department of Reproduction and Clinic of Farm Animals. Also, the person who is responsible to take the notices needs to inform students because an active work in the mobile clinic will be include as a clinical training for all of the students who are in this program. The on-call service is not only destined as an outgoing department for external patients or large animals but it serves as an inpatient night clinic for those patients that are coming to our Faculty. The owner of the animal can come for help during the night. Like in the previous case the veterinarian on duty and students that are listed in the book of duties are called so they can serve to the patient.

7.1.8 ON FARM TEACHING AND OUTSIDER PATIENT CARE

7.1.8.1 AMBULATORY (MOBILE) CLINIC

The Mobile Clinic is run by the Veterinary Policlinic of the Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats. The Mobile Clinic operates 24 hours per day, seven days per week, year round. It disposes of two vehicles (Mercedes Sprinter and Fiat Scudo for 8 people and equipment). There are three or four students on every duty. Students stay in telephone contact with the veterinary surgeons who inform them in the case of emergency. In emergency case in the night-time, the veterinary surgeon calls to students and then they go together for a visit. In a day-time they meet at 8.00 am and go for visits that are arranged for a given day. Students are allowed to examine animals, inject medicines (iv, im, sc), help in hoof-trimming, assist in surgery.

Table 7.4a: Number of cases seen by the Ambulatory (mobile clinics) in the past three years (these numbers include animals seen during on farm services and outside teaching)

		Number of patients			Average
		2012	2013	2014	
Food-producing animals	Cattle	2300	2327	2396	1422
	Small ruminants	733	782	661	
	pigs	1747	954	894	
Poultry (no of flocks)		1	13	6	7
Rabbits (no production units)		0	0	0	0
Equine		135	153	162	150
Other – fur animals (number of animals in the herd)		0	0	0	0

7.1.8.2 OTHER ON FARM SERVICES AND OUTSIDE TEACHING

Faculty has defined contracts with cattle, goats, sheep and stud farms where students can observe and practice patient treatment:

- WUELS Agricultural Experimental Facility Wrocław-Swojec

- WUELS Agricultural Experimental Facility Radomierz
- Cattle and Pigs Farm in Przecza
- Cowshed in Dąbrówka
- Cattle, Sheep and Pigs Farm in Pawłowice
- Cattle and Pigs Farm in Głogówek
- Fish Farm Milicz
- Fish Farm Żłoty Stok
- Bee Farm Wrocław –Swojec
- Poultry Farm in Mikstat
- Poultry Farm in Niwki Książęce
- Poultry Farm in Niwki Królewskie
- Sable Siedlec
- Stable Martynice in Wrocław
- Centre for Treatment and Rehabilitation of Wildlife Animals

Each student visits above listed farms at least once (WUELS Facility Swojec and Radomierz - several times)

Table 7.4b Number of patients seen on outside teaching in the past three years – practically this data contains Table 7.4a.

Species		Number of patients			Average
		2014	2013	2012	
Food producing animals	cattle	97	90	90	92,3
	small ruminants	97	90	90	
	pigs	97	90	90	
	Other farm animals*				
Equine		135	153	162	150
Poultry (flocks)					

* indicate species

7.1.9 OTHER INFORMATION

The Clinics cooperate with local Animal Care Societies (TOZ), Animal Guard, and animal shelters in the scope that includes the provision of medical care for homeless dogs and cats, as well as sterilisation of homeless female cats and both female cats and female dogs in shelters, prior to the adoption of these animals. Veterinary students participate in all medical procedures and treatment related to the said animals as a part of their clinical internship and practical classes on animals reproduction and surgery.

Buildings of the Clinics were in recent years modernisation and adaptation to the standards of modern and innovative veterinary clinics. None of private practice clinics can compare to the Clinics in terms of premises (operating rooms, out-patients' clinics, rooms for animals etc). In relation to small animals, the location of the Clinics in the city centre is very convenient. It impedes, however, the transportation of sick large animals.

The Clinics also offer in-patient treatment to both small and large animals, which cannot be provided by the majority of private practice clinics.

The Clinics have professional diagnostic equipment allowing for: Xradiation, 3 D ultrasound and endoscopy, MRI, TK or doppler. The above cannot be obtained in the majority of private practice clinics. The Clinics also have an on-site laboratory allowing for various types of tests: hematological ones, bacteriological, histological, immunohistochemical, endocrinological, biochemical blood test, urine test, smear test, semen analysis.

Private practice clinics do not provide such a range of diagnostic tests. Veterinary practitioners working in the Clinics are either species or disciplinary specialists who present a high level of theoretical and practical knowledge. Furthermore, our employees constantly improve their skills and raise their qualifications by means of didactic and research activity, internships held in the country and abroad, as well as participation in foreign and domestic conferences and congresses.

The numbers of cases in which are the Clinics of the FVM that are patients' first contact with a doctor, amounts to more than half. Depending on the specialty of a given Clinic, the proportion may vary from 50% to 90%. The remaining percentage refers to patients previously treated in private practice.

In order to maintain partnership-based relations with private veterinary surgeons, their patients sent to the Clinics for consultation, are sent back afterwards with all tests results. In order to acquaint private veterinary practitioners with diagnostic and therapeutic possibilities of the Clinics, as well as to encourage them to cooperate with the Clinics, there are meetings

and trainings organised with the specialist from the Faculty, employees of the Clinics and private veterinary practitioners themselves.

The Clinics provide a wide range of services carried out by species specialists (small animals diseases, ruminant diseases, equine diseases, pig diseases, poultry diseases, fur animals diseases, fish diseases, bee diseases), as well as by disciplinary specialists (internal diseases, surgery, orthopedics, reproduction, infectious diseases, neurology, gastroenterology, ophthalmology, dentistry, dermatology, cardiology, oncology, radiology, clinical analysis).

The Clinics not only maintain good relations with private veterinary practitioners, but also provide them with their support in difficult diagnostic and therapeutic cases. There is, however, some tension related to competition and struggle for patients, which results from a great number of private clinics, as well as from the fact that a significant number of veterinary practitioners employed at the Faculty have their own private practice. Since the Clinics are in possession of appropriate laboratory facilities and specialist equipment, they are referred to in the cases of patients requiring specialist tests and expertise. These cases, including all animal species, are consulted with doctors from a particular Clinic by private veterinary practitioners. The Clinics carry out diagnostic tests ordered by private veterinary practitioners and provide the said practitioners with consultation regarding diagnosis and treatment. In particularly difficult cases and at the request of a practitioner in charge, the Clinics themselves may continue treatment. Many students, individually, make contact with private veterinary practitioners and voluntarily work for them in order to gain more practice. After fourth and fifth year respectively, students have a monthly holiday practice in private clinics. On the basis of agreements concluded with private clinics, abattoirs and meat packing plants, fifth year students have the possibility of taking additional practical training aiming at improving their knowledge for meeting all necessary day one skills requirements.

Classes on veterinary administration are conducted with the participation of members of the General Veterinary Inspectorate, as well as employees of the Border Veterinary Inspectorate.

All patients in the Clinics are recorded in a computer “XP Clinic” system, which records all needed patient data including information about medical history, medical examination, additional examination (blood test, X-ray, ultrasound etc.) and about his owner (name, surname, address, bills etc.). If a doctor wants to can print the history of treatment.

7.1.10 RATIOS

Table 7.5: Animals available for clinical training (in the clinics of the Faculty or seen through the Ambulatory clinic) as ratio to the number of students in last full year of clinical training

				Denominator
R 11:	$\frac{\text{No. of students graduating annually}}{\text{No. of food-producing animals seen at the faculty}}$	=	$\frac{171}{1610}$: 9,4
				Denominator
R 12:	$\frac{\text{No. of students graduating annually}}{\text{No. of individual food-animal consultations outside the faculty}}$	=	$\frac{171}{1422}$: 8,316
				Denominator
R 13:	$\frac{\text{No. of students graduating annually}}{\text{No. of herd health visit}}$	=	$\frac{171}{92}$: 0,538
				Denominator
R 14:	$\frac{\text{No. of students graduating annually}}{\text{No. of equine cases}}$	=	$\frac{171}{372}$: 2,18
				Denominator
R 15:	$\frac{\text{No. of students graduating annually}}{\text{No. of poultry/rabbit cases}}$	=	$\frac{171}{1344}$: 7,86
				Denominator
R 16:	$\frac{\text{No. of students graduating annually}}{\text{No. of companion animals seen at Faculty}}$	=	$\frac{171}{10754}$: 62,9
				Denominator
R 17:	$\frac{\text{No. of students graduating annually}}{\text{Poultry (flocs)/rabbits seen}}$	=	$\frac{171}{7}$: 0,04

Table 7.6: Animals available for necropsy

				Denominator
	No. of students graduaiting annually	=	171	:
R 18:	<hr/>			2,46
	No. necropsies food prod. Animals+equines		420	
				Denominator
	No. of students graduaiting annually	=	171	:
R 19:	<hr/>			2,10
	No. poultry/rabbits necropsies		360	
				Denominator
	No. of students graduaiting annually	=	171	:
R 20:	<hr/>			4,52
	No. necropsies companion anim.		774	

7.2. COMMENTS

The number of large animals is not sufficient for teaching. It expected that it will increase in the future. This is compensated by many clinical cases seen by the Mobile Clinic and during outside teaching. In the our region in Wrocław large animals (pigs, cattle or horse) are raised mainly in large farms and they not accept day-to-day visit by constantly changing groups of students. The Faculty has signed agreement with other farm and the students students take an active part in all veterinary procedures, like vaccination, castration, operation of hernia, blood sampling, application of medicines etc.

7.3. SUGGESTIONS

The number of necropsies of food producing animals (excluding poultry) is too small and should be increased by taking more large animal cadavers from farms. The patient flow in food producing animals and partially in horses is also too small.

Chapter 8. LIBRARY AND LEARNING RESOURCES

The Main Library of Wrocław University of Environmental and Life Science

<http://www.bibl.up.wroc.pl/>

<http://www.bibl.up.wroc.pl/ENU/index.html>

8.1. GENERAL INFORMATION

The Main Library of Wrocław University of Environmental and Life Sciences functions as a college library common to all faculty of WUELS but also as the leading library of the region as for agricultural and related sciences. Its collection of 227145 books, journals and special resources in veterinary, agriculture, zootechnics, food technology, melioration, environment engineering and many others. The Library serves nowadays as many as 10140 readers, making them available to 69447 vol. yearly. There are 40 full time employees in the library

The most important tool of information about the Library's collection is the integrated library system ALEPH. Its implementation began in 2002, January. Thanks to its existence that its possible to search through the catalogue (<http://aleph18.bibl.up.wroc.pl>), order books, check out one's own account any time at any place through the Internet. All present actions of the Library tend to provide the reader with as much as possible information in the electronical aspect: we make accessible several data bases in agricultural and related sciences and the electronical journals.

Facilities in the Main Library:

website of the library (information set in polish and english);

System Aleph – catalogue on-line of resources: users can remotely order books, extend terms and check own's librarian accounts;

Users Service Center – fast, complex and professional information and librarian service;

Users Service Center – „ask a librarian” during opening hours of library;

22 terminals for students in the library;

Social room for students;

W-Fi;

Offer of trainings and lectures for WUELS students: lecture about how to search information and use data bases, e-books and e-journals which contain information about domestic and global literature, training for citation analysis and training how to use e-books and e-journals; Xerox machine.

Opening hours:

Monday – Friday 8:00 a.m. – 19:00 p.m.

Saturday 10:00 a.m. – 15:00 p.m.

Sunday – closed

Local Lending Room, Inter-Library Lending Room

- General Reading Room – number of seats 44
- Current Periodicals Reading Room – number of seats 7
- Reference Publications Reading Room – number of seats 9
- Users Service Center

The library's collection - 227145 vol.:

- books – 147004 vol.

- journals – 80141 vol.

Library in 2014 r. subscribed – 313 titles of polish and foreign journals

Library purchased licences to:

a) **english e-books:**

- **CRC Press** – 1867 titles <http://www.bibl.up.wroc.pl/crcnb.html>,

- **Knovel** – 2590 titles <http://app.knovel.com/web/browse.v>

- **RSC** – 46 titles <http://www.bibl.up.wroc.pl/rscmbc.html>

b) **polish e-books:**

Ibuk Libra - licence to 1240 titles <http://www.bibl.up.wroc.pl/ibuk.html>

c) **e-journals in data bases:**

Oxford University Press – licence to 127 titles of journals (collection Life Sciences, Medicine) <http://www.oxfordjournals.org/>

Taylor & Francis Online Journal Collections – licence to 340 titles of journals (collection Science and Technology) <http://atoz.ebsco.com/Titles/Provider/...Library>

d) **Services of e-standards:**

INTEGRAM: – Architecture -access to 4932 norms

<http://www.bibl.up.wroc.pl/bacwi.html#budownictwo>

INTEGRAM: Food industry – access to 2182 norms

<http://www.bibl.up.wroc.pl/bacwi.html#spozywczy>

f) **Bibliographical data bases:**

Cab Abstracts http://www.bibl.up.wroc.pl/wykaz.html#cab_abstracts,

Food Science and Technology Abstracts

<http://www.bibl.up.wroc.pl/wykaz.html#fsta>,

ISSN – International Standard Serial Number

<http://www.bibl.up.wroc.pl/wykaz.html#issn>

Library provides access to tools to facilitate process of searching literature

Multibrowser – EBSCO Discovery Service – EDS (possibility of searching many e-resources by using common questions at the same time)

<http://eds.b.ebscohost.com/eds/search/basic?sid=1f4563f6-5b9a-4a7c-ae33-1825802104ff%40sessionmgr114&vid=0&hid=111>

A-Z list (the tool to link e-journals subscribes by the library)

<http://www.bibl.up.wroc.pl/menu4.html#Lista>

As part of Virtual Library of Science there are data bases with purchased licence by Ministry of Science and Higher Education for all research units located in Poland in 2014 users have access to:

- **e-journals in data bases:**

Ebsco <http://www.bibl.up.wroc.pl/wykaz.html#ebsco>

Elsevier – around 2000 titles of journals

<http://www.bibl.up.wroc.pl/menu4.html#Elsevier>,

Springer – 2810 titles of journals

<http://www.bibl.up.wroc.pl/menu4.html#Springer>

Wiley Online Library – 1377 titles of journals

<http://www.bibl.up.wroc.pl/menu4.html#Wiley>,

Science <http://www.bibl.up.wroc.pl/menu4.html#Science>,

Nature <http://www.bibl.up.wroc.pl/menu4.html#Nature>

Web of Science Core™ Collection

http://www.bibl.up.wroc.pl/wykaz.html#web_of_science

- **e-books:**

Springer – access to around 16.700 e-books and 10.558 vol. (*archives of series publication of Springer*) <http://www.springerlink.com/>

- **bibliographical data bases**

Agricola <http://www.bibl.up.wroc.pl/wykaz.html#agricola>

Agris <http://www.bibl.up.wroc.pl/wykaz.html#agris>

Data of month on platform OVID

<http://www.bibl.up.wroc.pl/wykaz.html#ovid>

Journal Citation Reports <http://www.bibl.up.wroc.pl/wykaz.html#journal>

Life Sciences Collection http://www.bibl.up.wroc.pl/wykaz.html#life_sciences

Medline <http://www.bibl.up.wroc.pl/wykaz.html#medline>

Scopus <http://www.bibl.up.wroc.pl/wykaz.html#scopus>

- **Library collaborates polish data base**

SIGŹ – System Informacji o Gospodarce Żywnościowej

<http://www.bibl.up.wroc.pl/wykaz.html#sigz>

and international data base

AGRO <http://www.bibl.up.wroc.pl/wykaz.html#agro>

Resources of Library intended for Faculty of Veterinary Medicine

The Main Library of Environmental and Life Science in Wrocław provides an access to 36 data bases (e-books, e-journals, bibliographical-searching data bases and link tools) which are helpful in didactic process for Faculty of Veterinary Medicine.

Data bases and collections with purchase licence by The Main Library of Environmental and Life Science:

1. **E-journals datas – full text**

Oxford University Press

licence to **127** titles of journals (collection Life Sciences, Medicine)

<http://www.oxfordjournals.org/>

Taylor & Francis Online Journal Collections

licence to **340** titles of journals (collection Science and Technology)
access through list A-Z:
<http://atoz.ebsco.com/Titles/Provider/...Library>

– **e-journals**

Journal of Wildlife Diseases
Veterinary Clinics of North America. Equine Practice
Veterinary Clinics of North America. Exotic Animal Practice
Veterinary Clinics of North America. Small Animal Practice

2. Collection of e-books

ibuk – licence to 1240 of titles, include biology (261 titles). Collections: biochemistry, physiology, genetics, immunology, mikrobiology, zoology, feeding)

KNOVEL licence to 2 590 of titles. Data base apart books include interactiv tools like tables, charts, equations for doing own researches and analysis. Collections : Biochemistry, Biology & Biotechnology, Environment & Environmental Engineering, Food Science
<http://app.knovel.com/web/browse.v>

Books published by CRC Press licence to **1867** of titles. Collections: Veterinary Medicine ([Anatomy, Ophthalmology, and Radiology](#), [Equine](#), [Exotics](#), [Farm Animal](#) , [Small Animal](#) - 90 titles)

<http://www.crcnetbase.com/action/showPublications?display=bySubject&category=41032309&expand=41032309>

3. Bibliographical-abstract datas

Cab Abstracts

<http://ovidsp.tx.ovid.com/sp-3.16.0a/ovidweb.cgi>

Food Science and Technology Abstracts

<http://ovidsp.tx.ovid.com/sp-3.16.0a/ovidweb.cgi>

Legalis – (veterinary medicine of administration, veterinary medicine of law)

<http://www.bibl.up.wroc.pl/wykaz.html#legalis>

As part of Virtual Library of Science (there are data bases with purchased licence by Ministry of Science and Higher Education for all research units located in Poland) users of Faculty of Veterinary Medicine have an access to:

– **e-journals**

Elsevier– 2000 titles

Collections: [Biochemistry, Genetics, and Molecular Biology](#), [Environmental Science, Immunology and Microbiology](#), [Medicine](#), [Neuroscience](#), [Pharmacology, Toxicology and Pharmaceutical Science](#), [Environmental Science](#), [Veterinary Science and Veterinary Medicine](#)

<http://vls2.icm.edu.pl/cgi-bin/sciserv.pl?collection=elsevier>

Springer – 2810 titles.

Collections: Biochemistry, Genetics and Molecular Biology, Environmental Science, Immunology and Microbiology, Medicine, Neuroscience, Pharmacology, Toxicology and Pharmaceutical Science, Environmental Science, Veterinary Science and Veterinary Medicine
<http://vls1.icm.edu.pl/cgi-bin/sciserv.pl?collection=springer>

Wiley Online Library – 1377 titles.

Collections: Agriculture, Aquaculture, Fisheries, Fish Science, Food Science, Life Sciences, Anatomy, Physiology, Cell and Molecular Biology, Ecology, Genetics, Microbiology, Virology, Neuroscience, Zoology, Animal Science, Medicine, behavioral Sciences
<http://onlinelibrary.wiley.com/>

Science – <http://www.sciencemag.org/>

Nature – <http://www.nature.com/nature/index.html>

– **e-books**

Springer– around 16.700 e-books and 10558 vol. (archives of series publication of Springer) (Biochemistry, Genetics, and Molecular Biology, Environmental Science, Immunology and Microbiology, Medicine, Neuroscience, Pharmacology, Toxicology and Pharmaceutical Science, Environmental Science, Veterinary Science and Veterinary Medicine)
<http://vls1.icm.edu.pl/cgi-bin/sciserv.pl?collection=springer>

– **bibliographical data bases**

Agricola

Agris

AGRO

Data of month on platform OVID

Ebsco

Journal Citation Reports

Life Sciences Collection

Medline

SIGŹ – System Informacji o Gospodarce Żywnościowej

Web of Science Core™ Collection

Numbers of foreign journals subscribed in 2014 for Faculty of Veterinary Medicine:

– **12 printed titles**

American Journal of Veterinary Research

Avian Diseases

Avian Pathology

In Practice

Journal of the American Veterinary Medical Association

Journal of Wildlife Disease

Pferdeheilkunde

Reproduction & Abstract Series

Veterinary Clinics of North America. Equine Practice

Veterinary Clinics of North America. Exotic Animal Practice

Veterinary Clinics of North America. Small Animal Practice
Veterinary Record - English Edition

– **4 online titles**

Journal of Wildlife Diseases
Veterinary Clinics of North America. Equine Practice
Veterinary Clinics of North America. Exotic Animal Practice
Veterinary Clinics of North America. Small Animal Practice

There are smaller libraries with specific literature located in certain departments that are available for the students.

Locations:

- [Department of Epizootiology and Clinic of Bird and Exotic Animals](#)
- [Department of Reproduction and Clinic of Farm Animals](#)

8.2. Comments

Main library and departmental small libraries appear to be satisfactory and cover needs of staff and students. Students have broad access to textbooks and on-line journals. At the beginning of each academic year as a Faculty we organize a two days book exhibition at the Faculty. All members of academic society have an opportunity to read and buy professional literature.

8.3. Suggestions

Extension of the reading room in Main Library could be considered although nowadays students are moving into online activities.

Chapter 9 – ADMISSION AND ENROLMENT

9.1. Undergraduate courses

Students can study in a truck financed by Ministry of Higher Education and Sciences or in a paid truck study (fee is 4300 PLN per semester). Polish students pay for first 6 semesters and after beginning from the 7th semester they do not pay for the rest of the study course.

The minimum number of years (MNY) allowed to successfully complete the curriculum is 5,5 (11 semesters) with 330 ECTS. **NMY: 5,5 years**

Table 9.1. **Undergraduate student composition in year prior to the visit.**

Total number of undergraduate students	1371
Total number of male students	359
Total number of female students	1012
Foreign students	74
- from EU countries	18
- from non-EU countries	56

* students that pay for the study

9.1.2. Student admission

One year before academic year starts Senat of our University makes up a decision about numbers of places in every study directions and rules of enrollment.

Candidates for veterinary study must pass final high school examination called “matura” from subjects:

- biology – minimum 50% of overstandard high school maximum point level
- chemistry - minimum 50% of overstandard high school maximum point level

Candidates who pass “matura” examination according to old rules (before 2005) has to write an entrance test with biology and chemistry (no candidates in that way so far).

After the exams the ranking list is made. Candidates who did not achieved enough results to enter non-paid truck study can apply for paid truck study. There is no differences between this two ways of study. Paid trucks ends after 6th semester and than student is automatically transferred to non-paid truck. Decision about starting with paid study was made

after big discussion within the Faculty. In that time (year 2003/2004) was accepted by Senat of Wrocław University of Environmental and Life Sciences. Such a situation was a result of unbalanced ministerial financing system that do not reflect the cost of student education in a proper way. According to Polish government policy costs of higher education are covered in about 70% by Ministry of Education and 30% University/Faculty has to obtain from other sources.

Candidates with Polish citizenship who hold a certificate of high school abroad which is incomparable to Polish High School Diplomas have to pass an exam in biology and chemistry in front of the Selection Committee.

Foreigners can apply for study in the Polish language if they have appropriate certified knowledge of Polish language and if they have legalized certificates or documents obtained abroad equivalent to the Polish Matura.

Moreover, they should have the confirmation of validation of Matura exam issued by the Department of Education suitable for the place of living. The validation is not necessary, if a candidate has a diploma of the International Matura or European Matura (Regulation of the MSHE of December 12, 2006). Tuition fee for study in English Language (English Division) is 8000 Euro per year.

Faculty is concerning the lowering of students intake beginning from the year 2016/17 about 50 persons. It would be a good move forward to stick to the goals of the Faculty.

Table 9.2. Intake of veterinary students in a last 5 years

Year	Number applying for admission	Standard intake	Other entry mode
2014/15	1290	270	14 + 2
2013/14	1230	270	13 + 2
2012/13	1186	270	16 + 2
2011/12	1221	270	14 + 2
2010/11	1149	270	12 + 2

Other entry mode:

- each year there is one group of foreigner students (English Division, 12-16 students)
- 2 students per year study according to the program “Wrocław Now” dedicated for the students with Polish nationality who are living in former USSR countries (i.e. Ukraine, Belarus, Russia), the condition is to have a document called “card of Polish citizen” and to speak Polish, and to fulfill entrance criteria of course.

9.1.3 Student flow

Table 9.3. Student flow and total number of undergraduate veterinary students.

Number of student present oater admission year 1		No of additionally admitted student *
1 st year	270	
2 nd year	297	
3 rd year	243	
4 th year	239	1
5 th year	139	2
6 th year	176	
>6 th year		
Number of undergraduate veterinary students	1371	

* transferred from other faculties in Poland

Table 9.4. Number of students graduating annually over the past five years.

Year	Number graduating
2014/15	171
2013/14	151
2012/13	168
2011/12	221
2010/11	184
Average	179

Table 9.5. Average duration of studies (distribution of students in years) (2014/2015)

Duration of attendance	number
years 0	124
years 1	28
years 2	11
years 3	3
years 4	3
years 5	0
years >5	2

The requirements for progression to a subsequent academic year of the course are regulated by the Study Regulation of the WUELS. According to this regulation, all subjects should be completed and all examinations passed for progression to a subsequent year of the course. In some individual cases, it is possible to progress conditionally, without completing a non-sequence subject; maximum two. This/these subject/s has/have to be completed within the next academic year. "Sequence" subject limits further education i.e. Anatomy, Physiology, Pharmacology). The pass mark for the semester is to get the number of ECTS points. In order to obtain credit of the academic year, minimum of 60 ECTS should be gained. For repeating the course there is a fee paid by the student. Fee is regulated by Rector's announcement according to the number of hours of the subject.

Student is allowed to progress to the next year after passing all exams and practical training including extramural part of studies. However sometimes student who does not pass the subject that is not recognized by Dean as a "critical" for curriculum can be allowed to progress to the next year under condition of repeating that subject during the academic year.

If the student did not complete the semester/year is to ask for permission of repeating the study year. If the break in the study process is longer than 5 years the candidate has start admission procedure again. Dean of the Faculty can ask a student to leave the study in an extraordinary circumstances (i.e. permanent absence, lack of progress in study).

Fortunately we do not have the situation to ask the student to leave.

9.2. Comments

Number of students starting the first year is too high from teaching point of view. In the other hand Polish higher education financing system is constructed according to simple but illogic rule: "more student you enrolled more money you get".

Number of enrolled student impact on the number of students in groups (practical training, supervised work, clinical work). Number of academic staff working in our faculty is more less stable for 15 years. But number of students systematically increases.

Present staff have about 30%-50% more work to in comparison to the previous years.

It must reflect on the teaching quality according to the rule "quality or quantity" – you can't have both. On our faculty there are subject that student call "critical" – anatomy, histology, biochemistry, pathological anatomy. This subjects are difficult for itself and make students repeat the year of study. In that case student repeats only that subject that failed.

Number of students graduating each year is too high for country like Poland. We have four Faculties of Veterinary Medicine in Poland – average number of new graduates per year is

about 600. Polish Chamber of Veterinary Surgeons some years ago performed studies about market for veterinary profession that shows that about 400-500 graduates per year is enough for country). According to the data from Polish Chamber of Veterinary Surgeons annually about 40-50 graduates leaves Poland to work in other countries, mainly EU but also Canada, USA and other.

“Feminization” of the profession make the market of veterinary service unbalanced. More graduates went to work with dogs and pets and with exotic animals (amphibians, reptiles, rodents or other “small” animals. There is still place for large animal vets. Number of professional active vets in Poland is around 12,500 including all area of work. Strictly in private practice works about 9000 vets (small, large animals and poultry).

Procedures of creating a ranking list is clear and easy for candidates and is a proper way to enroll best prepared person to Faculty of Veterinary Medicine.

9.3. Suggestion

Number of student enrolled for first year should be decreased to ensure good quality standard education. Improving ministerial financing system of higher education. Faculty should cooperate more closely with the industry and make service more available (scientific and common veterinary service). A strong marketing activity is required for the next years.

Drop –out percentage is quite high. This is the reason of the enrollment system – criteria are focused on best marks that candidates have. And it is not the same to have the best marks and to “feel” specific veterinary study process and profession. Some candidates and than students are not fully aware of the area of veterinary activities.

Chapter 10. ACADEMIC AND SUPPORT STAFF

10.1 Factual information

Table 10.1: Personnel in the establishment provided for veterinary training

	Budgeted post (FTE)		Non- budgeted post (FTE)		Total (FTE)	
	VS	NVS	VS	NVS	VS	NVS
1. Academic staff						
Teaching Staff (Total FTE)	133	27			133	27
Research Staff (Total FTE)			1		1	
Total FTE (VS+NVS)	160				160	
FTE providing last year teaching	40-50*				40-50*	
2. Support staff						
Responsible for care of animals	11				11	
Responsible for preparation of practical teaching	57				57	
Responsible for administration, general services, maintenance	13				13	
Engaged in research work	**				**	
Others.....						
Total support staff	81				81	
3. Total staff	241				241	

* precise number of FTE providing last year teaching will be possible to determine after introduction of proposed electives

** staff engaged in research work are usually the same people that are employed in the faculty on support positions; if they are involved in research work they are extra paid from grant funds

Teaching staff works on full-time, there are very rare situation to employ part-time teaching staff. All academic staff is obliged to make teaching and scientific research as well.

PhD students are included in the staff numbers because they are obligated to perform regular teaching activities: 90 hours at 2nd and 3rd year of their postgraduate study.

Students of Veterinary Medicine have also classes with teachers from other faculties from our university e.g from Faculty and Biology and Animal Breeding, Humanities Center (humanistic subjects) as well as from intercollegiate centers (Foreign Languages Center, Physical Education Center). External teachers (e.g. veterinary practitioners, state veterinary officers, etc) are also involved in teaching.

Porters and housekeepers are administered centrally by the university and they are either not included in support staff.

Table 10.2. Allocation of academic(veterinary surgeon and non veterinary surgeon) teaching staff- expressed as FTE- and support staff to the various departments

Department name	Academic teaching staff												Support staff		
	Full prof.		Associate prof.		Assistant prof.		Assistant		Lecturer		PhD Student		Technical (b+d+e)	Animal carers (a)	Admin. (c)
	VS	NVS	VS	NVS	VS	NVS	VS	NVS	VS	NVS	VS	NVS			
1	3	-	4	1	9	1	-	1	-	-	2	2	5	1	1
2	3		3	1	2	6	1	1			1	3	5	-	1
3	4		1	1	1		2				3	3	5		1
4	2		2		4		1						5	1	1
5	3		3		12		3				7		10	2	1
6	1		3		7		2		1		3		5	2	1
7	2		1		5		1		2		3		5	2	1
8			1		3		6				3		10	1	1
9		1	2		3	1			1		1	2	4	-	-
10										1					
11					1								2		
12	1				2		1						1	2	

1. Department of Animal Physiology and Biostructure
2. Department of Biochemistry, Pharmacology and Toxicology
3. Department of Immunology, Pathophysiology and Veterinary Preventive Medicine
4. Department of Pathology
5. Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats
6. Department of Epizootiology and Clinic of Bird and Exotic Animals
7. Department of Reproduction and Clinic of Farm Animals
8. Department of Surgery
9. Department of Food Hygiene and Consumer Health Protection
10. Computer Lab
11. Faculty Vivarium
12. Diagnostic Experimental and Innovative Biomedical Technology Center

Ratios: From the above data please delineate the following ratios

$$\mathbf{R\ 1:} \quad \frac{\text{No. undergraduate vet. students.}}{\text{No. total academic FTE in vet. training}} = \frac{160}{1373} : \quad \mathbf{8.58}$$

$$\mathbf{R\ 2*:} \quad \frac{\text{No. undergraduate students at faculty.}}{\text{No. of total FTE at Faculty}} = \frac{160}{1373} : \quad \mathbf{8.58}$$

$$\mathbf{R\ 3:} \quad \frac{\text{No. undergraduate Veterinary students.}}{\text{No. total VS FTE in vet. training}} = \frac{133}{1373} : \quad \mathbf{10.32}$$

$$\mathbf{R\ 4:} \quad \frac{\text{No. students graduating annually.}}{\text{No. total VS FTE in vet. training}} = \frac{133}{183} : \quad \mathbf{0.72}$$

$$\mathbf{R\ 5:} \quad \frac{\text{No. total FTE support staff in vet. training}}{\text{No. total FTE academic staff In veterinary training.}} = \frac{160}{81} : \quad \mathbf{1.97}$$

* All academic staff is obliged to make teaching and scientific research as well.

The employing of university teachers is regulated by the Higher Education Act of July 27, 2005 (with some changes made later on), the Regulation of the Minister of Science and Higher Education, and the Statute of the WULES in Wrocław. In accordance with the regulations, the agreement to create a position of full-time professor, associate professor, visiting professor, assistant professor, assistant and lecturer is given by the Rector of University, on the request of the Dean of the Faculty. The candidates for the posts are chosen

by means of an open contest. Open contests for all available posts are announced by the Dean of the Faculty.

Allocation of staff to the departments depends in a large part on the number of hours assigned to the subject. Obligatory teaching hours are 210 hours/year for professor, 240/year for associate professor, assistant professor and assistant, and 360 hours/year for lecturer. It is limited however by the Faculty budget.

The amount of posts for technical employees at the Faculty depends on the number of students and teaching hours, and is calculated by the University. There is also the possibility to employ additional staff from service income.

There are difficulties in recruiting at the FVM despite relatively low salary level. The Faculty graduates several PhD's every year and many of them seek positions in the Department where they completed their degree but according to the policy of University it is better to pay for extra hours for teachers employed than to employ new teachers. Every job post has very high additional job's cost such as social security, health service etc.

The Higher Education Act and the Statute of the University limit possibilities of employment. The Rector or Faculty Council must give a permission for outside teaching and research work.

There are some regulation governing outside work, including consultation and private practice by staff working at the establishment. All such situations are generally regulated by the Higher Education Act. According to it, if a person working at the establishment wants to work outside, he/she has to inform the Rector of the WULES about it. It is also necessary to declare whether the establishment is the primary employer.

There are some possibilities and financial provisions for the academic staff who wants to attend scientific meetings but mainly it depends on the budget of the departments or can be financed from the grants.

There is a wide offer regarding possibilities of attending scientific training outside the University financed by the Ministry and Polish and foreign foundations (e.g. Foundation of Polish Science, Alexander von Humboldt-Foundation, Fulbright Program, British Council).

Moreover, within Erasmus and ProEdu Programs short term visits to EU Universities are possible.

In theory it is possible to go on sabbatical leave but in real it is impossible, because of great number of students and classes and necessity of doing scientific research because every academic teacher is evaluated every two year period. Not has been performed at the University lately.

10.2. COMMENTS

The number of the teaching staff and teacher/student ratio appears to be not satisfactory because of too high load of students but University (and Faculty) gets money from central national budget (from Ministry) and the amount of money depends on amount of students. The faculty of Veterinary Medicine in Wrocław is very popular and each year there are many candidates. Other faculties which belong to WUELS are not so popular and there is no a big amount of candidates for them so for financial reason for the whole University (from University point of view) it is the best solution to take as much candidates for veterinary as it is possible.

The number of the technical staff is too low and should be increased. The salary levels are significantly lower than in the private sector. The percentage of veterinarians in the academic staff appears to be satisfactory and they cover all subjects. The percentage of NVS seems acceptable, especially since they are involved in teaching non-clinical subjects.

The major problem in recruiting staff is associated with finances. The Faculty graduates several Ph.D.s every year and many of them seek positions in the department where they completed their degree. From this point of view there is no problem with new candidates with academic degrees. However, insufficient funds make such appointments in many cases impossible. Another issue is recruitment of support personnel. In addition to funds shortages, which makes hiring support staff difficult, low wages among this category of employees discourages new candidates to apply for such positions.

10.3 SUGGESTIONS

Staff employment and wages are managed centrally by University and as a FVM we would like to be much more independent in that area. Wages not only for teaching staff but also for support staff are centrally established by University without regarding the conditions and faculties where they work (there are strict frames established for the certain groups of certain staff).

One of the good idea for the FVM would be to have the possibility of employment veterinary surgeons as residents (no obligation for research, just providing service for animals and teaching).

A splitting of teaching and research obligation would be also a good idea. There is a special need for this issue in clinical sciences.

In Poland at the university when the person becomes the full professor automatically it allows to work till 70 years old.

There is a rise up of discussion at the universities to implement contracts for limited time.

CHAPTER 11. CONTINUING EDUCATION

11.1. FACTUAL INFORMATION

Veterinarians are faced with the responsibility of continuing the learning process beyond graduation maintaining their scientific knowledge current because the body of knowledge in veterinary medicine is expanding so rapidly and in so many directions.

In Poland continuing education is realized by organizing courses for veterinarians. Specialties covered by the postgraduate education system:

1. Diseases of dogs and cats
2. Surgery
3. Animal reproduction
4. Diseases of ruminants
5. Diseases of swine
6. Diseases of horses
7. Diseases of bees
8. Diseases of fish
9. Diseases of fur animals
10. Diseases of wild living animals
11. Veterinary radiology
12. Laboratory animals pathology
13. Epizootiology and veterinary administration
14. Laboratory diagnostics
15. Veterinary prophylaxis and feed hygiene
16. Poultry and pet birds diseases
17. Slaughter animals and food of animal origin hygiene.

Specialization study lasts from 4 to 6 semesters – depending on the discipline.

After completing the course and passing an exam called State Examination in State Examination Commission in Puławy (National Veterinary Research Institute), participants receive a title of “specialist.”

The Faculty of Veterinary Medicine in Wrocław has been involved with this kind of activity and training programs for veterinarians for many years.

Currently the our Faculty provides post-graduate studies in five specialties:

1. Slaughter animals and food of animals origin hygiene - 4 semesters, 43 participants
2. Diseases of dogs and cats - 6 semesters, 40 participants
3. Epizootiology and veterinary administration - 5 semesters, 35 participants
4. Surgery – 6 semesters, 40 participants
5. Poultry and pet birds diseases – 4 semesters, 33 participants

The Faculty also conducts postgraduate studies in terms of GMP/GHP and audits of quality management system in good quality with 25 participants.

Specialization study are paid by participants about 400-500 EURO per semester.

DISTANCE LEARNING

Faculty does not provide such a system. We are standing on the position that unique characteristic of the medicine profession is not to be turn to distance-learning. There are no areas in the practical way of teaching that could be taught via internet.

FVM cyclical organizes conferences and training courses for veterinarians in the field of diseases: dogs and cats, horses, cattle and poultry. Also many seminars in the field of animals neurology or audits of animal production.

CONFERENCES ANF WORKSHOPS ORGANIZED BY THE FACULTY

Faculty and Divisions organize scientific and popular, national and international conferences and workshops with long tradition concerning, among others, cattle breeding, monitoring the health of ruminants, equine diseases, horse breeding, diagnosis and treatment of dogs and cats, mechanisms of animals behavior, avian pathology, food safety and hygiene of food products of animals origin as well as veterinarian law and administration.

11.2. COMMENTS

In Poland veterinary surgeons it is recommended to participate in courses continue education. The National Chambers of Veterinary Surgeons recommends acquisition of learning credits, but there is still a way to verify those recommendations.

The quality of this kind of education provided by the Faculty appears to be satisfactory. Courses offered by the Faculty seem to be of good quality as judged by the number of applicants.

11.3. SUGGESTIONS

In Poland, the regular continuing education system should be introduced as mandatory for practicing veterinary surgeons and should be much more coordinated by National Chamber of Veterinary Surgeon.

The current courses have gained and enjoyed popularity among the veterinary surgeons who through their participation, can upgrade their knowledge and enhance professional expertise. Consequently, the diagnostic procedures they perform are faster and more accurate that translates into more effective therapeutic practices and more complete recovery.

Chapter 12. POSTGRADUATE EDUCATION

1. FACTUAL INFORMATION

Since 1995 on our Faculty there are doctoral studies. Students have to conduct scientific research and finish the study with doctoral dissertation (if student began his studies before 2011). From 1 October 2013 to register for the Ph.D. conferment procedure is held according to new rules. **Doctoral dissertation:**

*may be presented in a form of a published book, unpublished book (typescript) or as a series of articles thematically consistent, published in peer-reviewed journals,

*may also be an independent and separate part of a collective work, if it shows student's individual contribution in concept development, the performance of experimental design and interpretation of the thesis results,

*should constitute an innovative and original solution of scientific problem and show candidate's general and theoretical knowledge in particular scientific discipline and ability to carry on scientific work independently.

Doctoral dissertation is sent to two professors. Two positive opinions allow students to pass exams: discipline, foreign language and philosophy. If there are positive remarks students defend their doctoral thesis. Events are open for anybody and the Faculty has to inform public about time and place dissertation. After positive finish of the event Faculty Council gives the degree of “doctor of veterinary medicine – philosophy doctor” in a secret ballot.

Student of doctoral studies has to teach undergraduate students on the faculty 90 hour per academic year on the second and third year.

Candidates for doctoral studies has to finish regular study on disciplines like veterinary medicine, pharmacy, biology or biotechnology (depending on the area of studies).

Student are given doctoral stipendium every month. They can apply for grants from National Research Committee.

Enrolment procedures.

Enrolment is based on the point-oriented system and interview with the candidate.

Points:

- education (disciplines)
- average study grade
- final diploma grade
- foreign language skill

- research activity
- abroad experiences

After counting all factors ranking list is created. Minimum points to be accepted is 41.

Number of PhD places changes annually and is created by Faculty Council (i.e. 2012/13 – 15, 2013/14 – 16.

Total number of PhD students in academic year 2014/2015 – 37.

Year of doctoral studies	Number of students
first	12
second	9
third	6
fourth	10

In every department there are doctoral students so they work in the field of department research activity.

12.1.1 CLINICAL SPECIALTY TRAINING (INTERNS AND RESIDENTS)

No residency or internship programs certified by the European Specialty College exist at the our Faculty of Veterinary Medicine.

12.2. COMMENTS

Doctoral students are best of the students with excellent theoretical and practical knowledge. They take part in research projects and grants and publish their results in good scientific journals. Having finished doctoral study they start own practice or are employed on the Faculty or other institutions and companies.

12.4. SUGGESTION

The postgraduate education program should be continued owing to a fact that a large number of graduates from the Faculty of Veterinary Medicine wish to further extend their professional knowledge. Young people are highly involved in research projects and that motivates the professional researches to more active and creative activity in their scientific field.

Chapter 13. RESEARCH

13.1 FACTUAL INFORMATION

Basic sciences

Basic sciences are represented by the Department of Animal Physiology and Biostructure together with the following Divisions: the Division of Animal Anatomy, Division of Animal Physiology, the Division of Histology and Embryology and the Division of Animal Biochemistry within the Department of Biochemistry, Pharmacology and Toxicology.

Compulsory courses in basic sciences include: Anatomy of Domestic Animals, Topographic Anatomy, History and Deontology of Veterinary Medicine, Animal Physiology, Histology and Embryology, Cell Biology, Tissue Culture.

The Department of Animal Physiology and Biostructure offers trainings in domestic and wild animal anatomy for practicing veterinarians and animal breeders.

Student science club (Studenckie Koło Naukowe Medyków Weterynaryjnych) continuously boasts an active student anatomy section. Its members engage in the preparation of anatomic specimen, both wet and osteological, thus contributing to the growth of the collection of the Museum of Anatomy.

Research:

Issues related to central, peripheral and autonomic nervous system neurobiology, arterial, venous, lymphatic and endocrine system angiology, archeozoology and veterinary history and deontology.

Issues related to animal digestive system physiology and pathology and metabolic disorders.

Question of bone adhesion morphology in contemporary osteosynthetic methods.

Effects of bisphosphonates on the process of experimentally induced osteoporosis.

Preclinical sciences

The Faculty units dealing with preclinical sciences are: Department of Immunology, Pathophysiology and Veterinary Prevention, Department of Pathology, Division of Pharmacology and Toxicology within the Department of Biochemistry, Pharmacology and Toxicology and the Division of Parasitology within the Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats.

Preclinical sciences comprise the following obligatory courses: Pathophysiology, Public Health Protection in a State of Disaster, Veterinary Immunology, Ethology and Animal Welfare, Technologies in Animal Production, Veterinary Prevention and Clinical Immunology, as well as Pathomorphology, Ecology and Wildlife Pathology, Veterinary Microbiology, Veterinary Pharmacology, Pharmacy, Toxicology, Environmental Protection, Parasitology and Invasiology.

Research:

- Etiopathogenesis and pathomorphology of spontaneous and transplantable tumours.
- Pathomorphology and diseases of game animals.
- Monitoring health outcomes among game animals.
- Studies of equine viral arteritis.
- Yersinia infections in human and animal hosts.
- Animal immune responses to antigens of gram-negative bacteria.
- Cell and humoral immune response in autoimmune diseases of cats and dogs.
- Significance of magnesium ions for immunity of organisms.
- Interactions between immunity and reproductive system.
- Immunity of infant farm animals.
- Animal welfare and health protection issues.
- Mechanisms of blood coagulation disorders.
- Modulation of immune response in the course of experimental *Trichinella spiralis* invasion.
- Pharmacokinetic properties of antibacterial chemotherapeutics.
- Impact of synthetic and natural immunotropic medicaments on humoral and cell response of laboratory animals subjected to stimulation or suppression.
- Immunotoxicology of antibiotics and fluoroquinolones.

Clinical sciences

The Wrocław Faculty of Veterinary Medicine has four units devoted to Clinical sciences: Department and Division of Surgery, Department of Internal Medicine and Clinic of Diseases of Horses, Dogs and Cats, Department of Epizootiology and Clinic of Birds and Exotic Animals and Department of Reproduction and Clinic of Farm Animals.

Compulsory courses in Clinical sciences include: General Surgery and Anesthesiology, Detailed Surgery, Orthopedics, Radiology, Surgery of Farm Animals, Horses, Dogs and Cats, Biology, Clinical Diagnostics, Fodder Hygiene, Parasitology and Invasiology, Dietetics, Internal Diseases, Diseases of Cats and Dogs, Forensic Veterinary Medicine. Obligatory courses also include General Epizootiology, Veterinary Epidemiology, Infectious Diseases, Veterinary Administration, Bird Diseases, Fur Animal Diseases, Fish Diseases, Bee Diseases, Marketing for Practicing Veterinarians and Breeding of Farm Animals, Horses, Dogs and Cats.

Veterinarians are offered doctoral and specialist programmes in Animal Breeding, Diseases of Cats and Dogs, Diseases of Beneficial Insects, Diseases of Poultry and Exotic Birds, Epizootiology and Veterinary Administration, Surgery and Radiology, as well as in Veterinary Laboratory Diagnostics.

Research:

Development of new methods of recognizing and cardiosurgical treatment of anomalies in large cardiovascular vessels, modification of the new methods of hereditary and traumatic bone, joint, spine and soft tissue diseases. Disease diagnostics with emphasis on circulatory, digestive and respiratory system and parasitic diseases of domestic, game and exotic animals. Seroepizootiological survey of viral infection propagation in cattle, sheep, carnivorous animals and poultry, and studies on the infection degree of farm animals with *Borrelia burgdorferi* and *Toxoplasma gondii* and possibility of eliminating poultry infections with *Salmonella* sp. and *Compylobacter* sp. Studies on the use of immunoprophylactic in coccidiosis prevention in large scale poultry keeping and studies on the effect of synthetic pyrethroid insecticides and mineral fertilizers on bees. Farm and companion animal reproductive problems with focus on physiopathology of mammary gland, modern methods of infertility therapy, modern methods of semen evaluation, in vitro fertilisation and practical application of reproductive biotechniques in domestic and wild animals.

In 2014 WUELS employees published 117 papers listed in JCR, 88 papers listed by the Ministry of Science and Higher Education. The IF for publication in 2014 counted to 128.765, the total number of points for publications List A Higher Education totaled 2,610 points, and List B - 303 points.

Faculty staff we also include articles in periodicals popular - scientific, addressed to veterinarians and animal breeders, and took an active part in training courses organized for them and workshops.

Within the Faculty there are national and international programs financed by the National Science Center, the National Center for Research and Development in cooperation with industry partners.

Specialist labs located AT the Faculty operate scientific and diagnostics procedures and also provide services for individual clients.

Within the Faculty is the Experimental Diagnostic and Innovative Biomedical Techniques Center for programs with large Animals.

The Faculty promotes the activity of Students Science Clubs such as the Veterinary Medicine „Chiron”, the Basic Veterinary Sciences „Centaur” and the Exotic Animal Medicine „Mephitis”, which comprise students who demonstrate passion and are involved in research and scientific work.

In 2013 Veterinary Medicine „Chiron” took first place In the competition „StRuNa 2013” organized by the Ministry of Science and Higher Education In the category of „Conference of the Year 2013” for the Project „XVIII International Conference of Student Science Clubs”.

The faculty promotes a very active Veterinary Students’ Association AT Wrocław University of Environmental and Life science cooperating with the International Veterinary Students’ Association (IVSA).

As part of its activities Wrocław IVSA organizes, among others, Veterinary Student Conferences: „From the practical perspective” and „Practicing doctor advise students”, during which speakers are practicing veterinarians.

13.2 COMMENTS

Students have good opportunities to participate in research work in all areas of research activity of the Faculty. However, usually they choose clinical sciences rather than non-clinical. Active members of the VMSRC often seek continuation of their projects and apply for Ph.D. studies.

13.3 SUGGESTIONS

No suggestions