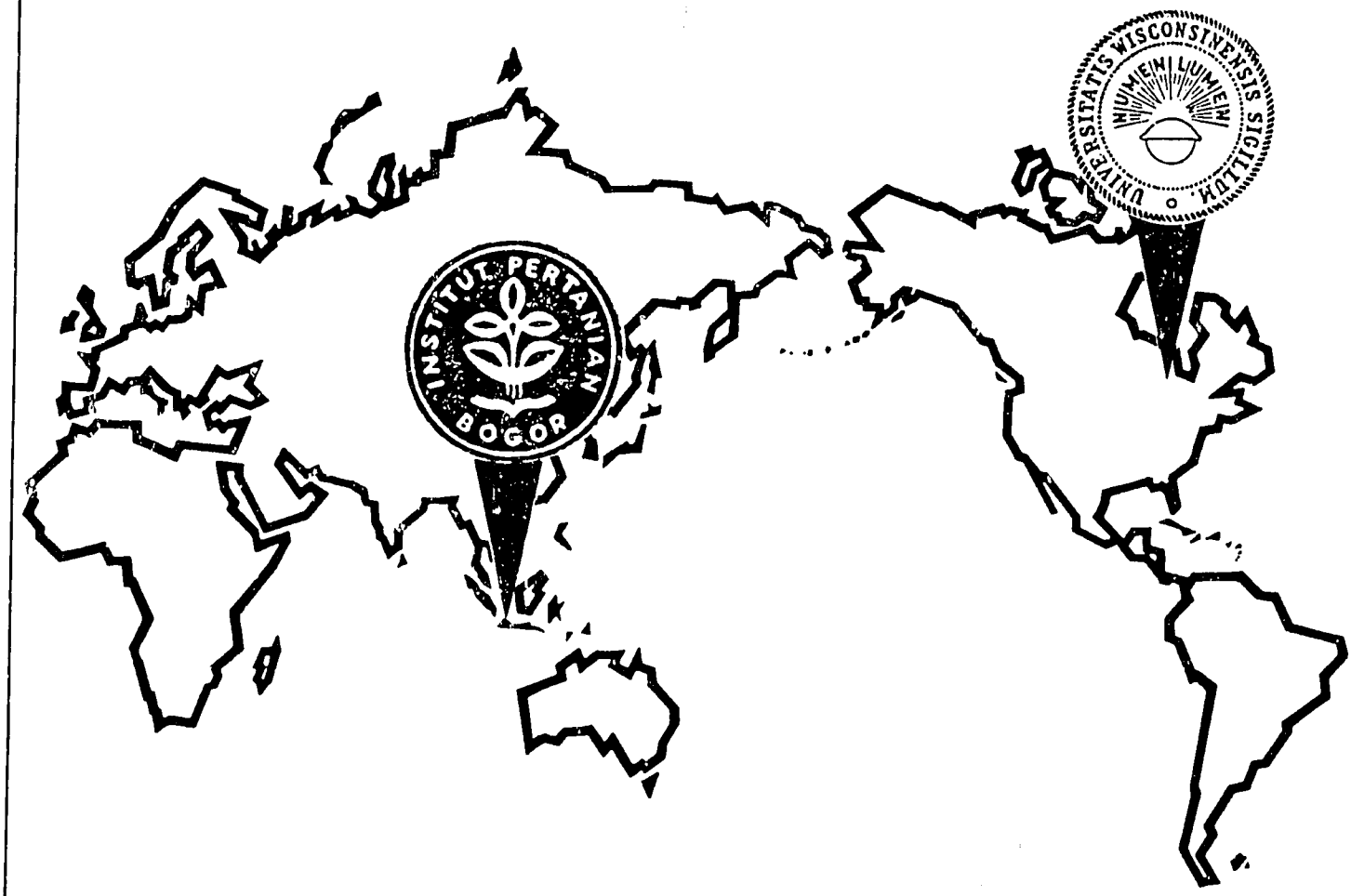
Institut Pertanian Bogor * University of Wisconsin

GRADUATE EDUCATION PROJECT



Aid Project 497-0290

Report No. 27

HALL

REPORT OF CONSULTANT

on

COLLEGE OF VETERINARY MEDICINE

at

Institut Pertanian Bogor (IPB)
Bogor, Indonesia

by

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USAID Project No. 497-0290

Consultant's Report on Matters Pertaining to the College of Veterinary Medicine, IPB, Bogor, Indonesia, 14 October to 8 November 1983.

Submitted by:

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Preface

Our mission was to assist the College in their attempts to produce graduate veterinarians of high quality needed to satisfy the growing demands being placed on the Veterinary Profession in Indonesia. We were also interested in new ways, or improved ways, to meet the College's interest in their teaching, research, and public service responsibility.

It was very challenging to come to a foreign country with no previous knowledge of their customs, language, or veterinary training and be placed in the role of an "expert."

With the cooperation, patience, and help of many people we were able to get enough of an understanding of the present situation, and future goals and aspirations to make this report.

Animal Health Center (AHC)

The Animal Health Center is seen as perhaps the last of the five new centers being established by IPB. I believe there is ample justification for the need of this Animal Health Center if the Veterinary College is to meet the need of improving the health of food animals, especially dairy cattle. The Center can play a role in improving the quality of teaching through increased contacts, more in-depth treatment of the subject matter in the disciplines involved. Areas of research can be identified which will not be in competition with existing programs and will supply a needed foundation for the teaching and public service responsibility.

The five units that are to make up the AHC are:

1. Reproduction Fertility Rehabilitation Center.
2. Ambulatory Clinic.
3. Avian Disease.
4. Animal and Fish Infectious Disease.
5. Nutritional Diseases of Animals.

We spent approximately one week visiting the various faculty members who are making inputs into the development of these center units.

We went over the project statement that deals with: I. Background and Supporting Information, II. Objectives of the Project, and III. Work Plan. We offered some general comments on the concepts of the Center, and specific comments where we thought it appropriate.

Some of our comments are as follows:

The justification of each of the five units can be improved by providing more supporting data, by citing existing figures on disease prevalence.

The institutional framework needs to be made more clear as to how this is visualized with respect to the administrative or physical home, as well as ties to the S_0, S_1, S_2, or S_3 programs. There are alternative ways this can be structured.

The objectives are too broad in some cases and need to be made more specific. It will be necessary to set up some reasonable priorities that can be accomplished within the staff, budget, and space available or contemplated.

The work plan dealing with time frame, personnel, budget, and space needs is incomplete. It is the most difficult of the three parts to complete, but it is unrealistic to think the IPB administration will accept the concept of the AHC without careful consideration of the inputs necessary to carry out the AHC activities on a continuing basis.

The project proposals should all be written in the same language.

We believe it would also be beneficial in getting support for this project if it could be presented in the form of an investment. In some units it should be possible to estimate the cost and benefits in terms of increased food for the people. The cost/benefit ratio should be helpful in convincing administrators of the importance in supporting the AHC.

If the IPB/University of Wisconsin Phase 2 Draft Proposal that we have read becomes a reality the College of Veterinary Medicine may be

able to make a contribution. For example, under the title, "Farming Systems Approach to Agricultural Development," the proposed programs in Soil and Water Conservation, Agricultural Production Systems, and Socio-Economic Studies could include parts of the AHC, or other faculty contributions. Specific suggestions as to possible ways the College could contribute were discussed in a Faculty meeting the morning of 7 November.

The revised document describing the AHC is not ready to be attached to this report but should be available from the Dean of College of Veterinary Medicine in the near future.

Veterinary Curriculum

We were surprised to learn that the curriculum in Veterinary Medicine has been reduced from six to four and one-half years. The trend in most of the developed countries is the reverse. Wisconsin requires two years of pre-veterinary course work before the student can enter his professional training.[1,4] There is serious discussion about raising it to three years.

U.S. veterinary colleges are not regulated by any governmental agency in terms of accreditation or approval. The minimum standard is set by the Council of Education of the American Veterinary Medical Association. The Council is made of of educators, college administrators, users of veterinary service, and practicing veterinarians. The specific requirements and procedure for accreditation are on file with the Veterinary College Dean. The shorter curriculum used by the Veterinary College in Bogor cannot provide the

same amount of training as that provided in veterinary colleges in the U.S., Canada, or the Neatherlands. There are curriculum standards set by the Food and Agricultural Organization (FAO) for the developing countries in Asia. The curriculum of the Veterinary College at IPB uses these standards as a guideline.

It is my impression that there are differences in the length of the veterinary curriculum in the various Veterinary Colleges in Java, and other Islands of Indonesia. The standard should be the same in all Indonesian Veterinary Colleges presenting the DVM degree, and in my opinion the minimum should be six years, or at least the FAO recommended training period, subject matter, and credit hours.

Examination of the IPB Veterinary College curriculum shows they spend a high percentage of their time studying social sciences, humanities, and animal husbandry subjects. This may not be wrong, except it is done at the expense of the veterinary medical subjects. These non-medical subjects are scattered through semesters one, two, three, five, six, seven, and eight, and take up at least one-half year of subject matter in the medical curriculum. With the explosion of new information in the veterinary field, and the need to develop new courses this time needs to be returned to the veterinary medical subjects.

We have found that the best group of subject matter that will predict the success of students in completing a veterinary curriculum is chemistry. In the USA we require 20 semester credits in chemistry and IPB only six. The biological and physical science requirements of IPB are much lower than found in our Wisconsin curriculum.

Additional input in curriculum evaluation could come from students, or student organizations, employers of veterinarians, and the IPB evaluation team. Another tool for veterinary college administrators to use for evaluation is a self-analysis developed by the Council of Education, American Veterinary Medical Association. Each department is asked to follow a procedure, or self-analysis. The procedure is on file with the Dean of the Veterinary College.

We would recommend that students be allowed some choice of subject matter. These electives allow some opportunity for individual development. Students differ in interests and talent and should be allowed at least a little choice for self-development.

There is a very comprehensive and thoughtful document prepared by the former Dean and Faculty of the Veterinary College.[2] It deals with the needs of the Indonesian country in the field of veterinary medicine to the year 2000 (only 16-1/2 years away). The concepts are flexible yet relevant to meeting the needs of the country in trying to increase animal protein, for example, and the demands this will place on the Indonesian veterinary profession. It can be very helpful in examining the curriculum, and making changes as necessary. Changing the curriculum will not be enough, the necessary funds for personnel, supplies, and equipment are also necessary.

Clinical Sciences

We met with each of the six Departments in the Veterinary College. In the process we showed them the new curriculum of the School of Veterinary Medicine in Wisconsin, and discussed some of the unique features.

In my opinion the group in most need of personnel and funding is the Department of Clinics. They are under-staffed and lack the proper teaching aids, medical supplies, and equipment. The ratio of third and fourth year students to staff of IPB/FKH (on paper) is 244/20. It is less than 20 when considering staff on leave, a death, and staff taken away to help with the Aftosa outbreaks. In contrast, the University of Wisconsin third and fourth year student/faculty ratio is 160/43.[3] It may not be possible to make a direct comparison between the two colleges, but the Bogor Veterinary College Clinic is definitely understaffed and underfinanced.

This was in evidence on three different occasions when I accompanied the ambulatory clinic staff and students to care for dairy cattle associated with the new dairy cooperative system. We observed the students in action, and questioned some of them about the disease problems we were treating. The answers revealed a lack of depth in their clinical teaching, and their actions around the cattle showed them to be unprepared to deal with handling dairy cattle. The students indicated this was not the fault of their instructors since there were too many students, and not enough faculty. There is not even the basic veterinary clinical instruments and supplies to demonstrate, or treat the sick cattle.

Of particular concern to me was the dangerous practice of examing cattle for infectious diseases, or reproductive disease problems without the benefit of a protective covering, a plastic or rubber glove to prevent the students or faculty from contracting serious zoonotic infections, such as Brucellosis.

Further evidence of the lack of clinical experience in IPB/FKH graduates is the requirement that if they come to a developed country, such as the USA

they cannot be allowed to practice their profession without spending at least one year serving an internship with a qualified veterinarian in practice, in addition to passing the same comprehensive academic test given to graduates of USA veterinary colleges.

There should be enough additional staffing in the clinic to allow them to specialize as do the basic science staff and to concentrate their teaching on their specialty. To obtain specialization, consideration should be given to having each member of the faculty in the Clinics "Board Certified." A list of the specialty boards is on file with the Dean of Veterinary faculty.

Staff Development Activities

1. Embryo Transfer in Cattle

A seminar was held for students and staff in the Department of Reproduction. We presented an illustrated lecture on the non-surgical technique developed in Wisconsin for transferring bovine embryos.

Before leaving UW-Madison we compiled a computer print-out of over 500 references of the world literature on this subject since 1974. We left this material with Dr. Mozes Toelihere.

We also brought along a copy of a comprehensive teaching manual and 1982 symposium proceeding compiled at Colorado State University College of Veterinary Medicine to be used as a reference.

A 35 mm set of slides and script were left for use as teaching material. It demonstrates the non-surgical procedures of bovine embryo transfer.

2. Bovine Reproduction

We presented a cassette taped lecture to the students and staff of the Department of Reproduction on Bovine Reproduction prepared by my colleague, Dr. John Andersen of UW-Madison. The lecture was supplemented by about 40 photocopied pages of the latest information on this subject from one of the textbooks to be used in the new School of Veterinary Medicine in Wisconsin.

The tape, slide script, and printed material were left for Dr. Mozes to use in his teaching, research, and public service.

3. Foot and Mouth Disease (Aftosa)

We presented an illustrated seminar to interested staff members in the Virology Section. The material presented a summary of current knowledge and demonstrated a technique used and recommended by the Pan-American Health Organization Expert Committee on Foot and Mouth Disease. The diagnostic technique is used to detect the virus in cattle that appear healthy but are carriers of the virus.

The 35 mm slides and script were left for use by the Virology Unit and Dr. Masduki Partadiredja.

4. Animal Technician Program (Veterinary Assistants)

An in-depth discussion was held with Dr. M.B.M. Malole regarding our Wisconsin Animal Technician program. A catalog, course content, annual report were left with him for help in the new program he is planning.

This is an effective and economical method of expanding existing veterinary services needed. It is widely accepted in developed countries during the past ten years.

5. Bovine Anthelmintic (Fendbendazole)

A new drug to control internal parasites in ruminants has just been announced by the American Hoechst Corporation. A series of 35 mm slides describing the effects of parasitism in cattle, the uses of the drug, its efficacy, and a new instrument for administering the drug is demonstrated.

The set of slides were left with a faculty member in the Parasitology section for Dr. Achmad Muchlis.

6. Veterinary Continuing Education/Extension

A seminar was presented to the faculty and students concerning our activities in this discipline. The seminar was divided into four parts: 1) The role of an extension veterinarian in Wisconsin; 2) Summary of our research in veterinary continuing education for Wisconsin Veterinarians; 3) An illustrated tour of the Clinic in the new Wisconsin School of Veterinary Medicine narrated by Dr. Bristol on cassette tape; and 4) The theory of motivation used to bring about changes - presented by Dr. M. White of Information Resources Center (IRC).

Various teaching aids, i.e. circulars, correspondence course, newsletters, and an exhibit used in public service were demonstrated and left with a representative of IRC, Dr. Emir Siregar.

A good discussion followed.

7. Procedure for Accreditation of Colleges of Veterinary Medicinie in the USA[3]

A copy of the document outlining the procedures used by the Council of Education of the American Veterinary Medical Association, our accrediting agency, was used for discussion with the Dean. It contains a procedure for departments in a veterinary college to conduct a self-analysis, and the collection of other data used in the evaluation process. Some of the methodology may be found useful to the IPB/FKH administration.

8. Other Resource Information

Catalogs of veterinary supplies and equipment, periodicals, book lists, and a DVM magazine were left with the Clinic faculty.

References Cited

1. Report of the University of Wisconsin System of State Government on Veterinary Medicine. November, 1978.

2. A Development Program to the Year 2000, Dr. Soewondo Djojosoebagio, Dean of IPB (FKH), Institut Pertanian Bogor, 1982.

3. Procedure for Accreditation of Colleges of Veterinary Medicine, Council of Education, American Veterinary Medical Assn., 1982.

4. Admission Requirements and Applicant Information for Admission Year 1984-1985. UW-Madison. School of Veterinary Medicine.

Appendices

1. Curriculum of the Wisconsin School of Veterinary Medicine.

2. Curriculum of the Faculty of Veterinary Medicine IPB (FKH), IPB.

EDUCATIONAL/RESEARCH PROGRAMS

It is not the intention of the School staff to limit the authority of the future faculty of the School in the development of its curriculum. It has been necessary, however, to develop a planning curriculum in some detail in order to plan the space requirements of the new facility.

Although neither this curriculum nor the space designed from it will unduly constrain the future faculty of the School in developing their curriculum, there are two aspects of this curriculum and the veterinary medical education in this School of Veterinary Medicine. Those two aspects are an emphasis on food animal medicine and the requirement that all students have a preceptorship (clinical residency) in food animal medicine. The emphaisis on food animal medicine is apparent in the third year curriculum with required coursework in large animal medicine, obstetrics (theriogenology), and herd health (preventive medicine) and in the fouth year curriculum with required periods in food animal medicine and surgery, ambulatory clinic (field services) at River Falls, and a preceptorship. It is believed that the curriculum provides unique and distinct educational opportunities in food animal medicine especially during the fourth year with its required and elective preceptorships.

For the purposes of facilities planning the curriculum has been based on a discipline oriented approach to teaching, since it provides the simplest method of planning space requirements.

Considerations in the Design of the Professional Curriculum.

1. The school will employ the present facilities of the UW-Madison and UW-River Falls to the maximum extent possible.
2. The curriculum will emphasize veterinary services for food producing animals and will include a preceptorship (clinical residency).
3. The Animal Health Laboratories of the Wisconsin Department of Agriculture, Trade and Consumer Protection will be utilized in the instructional program.
4. A large degree of cooperation will be encouraged between the School and the Medical School, the Research Animal Resources Center, the College of Agricultural and Life Sciences, the North Central Dairy Forage Research Center, the United States Fish and Wildlife Disease Laboratory, and the College of Agriculture at the University of Wisconsin-River Falls.

Goals of the Professional Curriculum

The goal of the professional curriculum is to provide a broad education in veterinary medicine which will enable the graduate to attain the skills necessary to enter the profession by:

1. Provision for the recognition of disease conditions based upon a sound understanding of the normal animal.
2. Provision of sufficient clinical experience to permit the student to develop confidence and to prepare for a professional career.
3. Provision of sufficient exposure to specialties to enable the graduate to have a basis for understanding them in the pursuit of research and/or specialty training in a post graduate program.

4. Provision of an opportunity for graduates to acquire skills in problem solving, interviewing, and other interpersonal relations which will enable them to interact effectively with clients and the public.
5. Provision of instruction in basic managerial skills which will allow graduates to practice in an efficient and cost effective manner.
6. Provision of a basis for the integration of veterinary medical skills into the husbandry and management practices of food animal production.
7. Provision of opportunities to understand the relationship of veterinary medicine to public health concerns.
8. Development in the student of a recognition of the importance of and a commitment to lifelong learning.

Clinical Instruction

The approach to clinical instruction in this curriculum is based on the assumption that the student is better prepared if clinical instruction begins early in the professional education process. Therefore, increasing degrees of clinical experience are offered during the four years of the curriculum.

The major portion of the clinical component of the curriculum occurs during the twelve-month fourth year, which is divided into 13 four week periods. The subject matter of nine of these periods is specified. The balance is spent on three elective periods, allowing the student to pursue particular interests or the increase clinical experience, and one period of vacation.

To give the student a complete clinical experience and to take advantage of Wisconsin's food animal population, two of the required periods involve experience at a facility away from the UW-Madison campus. They are preceptorship at the model clinical practice facility at River Falls, and another preceptorship with a veterinary medical practitioner in the state.

It should be pointed out that the use of the four week period system also enables the practicing veterinarian to use them in his continuing education to update his knowledge, to retrain in a desired specialty, or to renew less frequently used skills.

Fourth year mini-courses are proposed and certain of them may be required.

The fourth year curriculum is designed to emphasize clinical experience by placement of the student in field service and problem solving situations. The curriculum also requires more experience in preceptorships than is required by other institutions in the United States

The instruction of veterinary medical students is new to the UW-Madison campus. Certain courses in the veterinary curriculum will be useful to the graduate student in animal sciences. Although course titles used in the veterinary medical curriculum may appear similar to other courses taught on campus, those courses do not have the focus, course content or relevance required for use in veterinary medical education.

PROFESSIONAL CURRICULUM
SCHOOL OF VETERINARY MEDICINE

Year 1

	Semester 1	Cr.	Lect.	Lab	Clock Hrs.
I.	Gross Anatomy	3	1 hr 1X/wk	3 hr 2X/wk	7
II.	Histology/Embryology	4	1 hr 2X/wk	2 hr 2X/wk	6
III.	Biochemistry/Physiological Chemistry	5	1 hr 4X/wk	3 hr 1X/wk	7
IV.	Principles of Immunology	2	1 hr 2X/wk		2
V.	Interpersonal Skills; Group Processes; Interview Skills; Problem Solving	2	1 hr 2X/wk	2 hr 1X/wk	4
VI.	Animal Behavior	2	1 hr 2X/wk		2
VII.	Electives*				
		18			26

	Semester 2	Cr.	Lect.	Lab	Clock Hrs.
I.	Gross Anatomy	3	1 hr 1X/wk	3 hr 2X/wk	7
II.	Histology/Embryology	3	1 hr 1X/wk	2 hr 2X/wk	5
III.	Radiology	1	1 hr 1X/wk		1
IV.	Epidemiology	2	1 hr 2X/wk		2
V.	Physiology	4	1 hr 3X/wk	3 hr 1X/wk	6
VI.	Health History/Physical Exam/ Restraint Techniques	2			2-3
VII.	Neuroscience	3	1 hr 2X/wk	2 hr 1X/wk	4
VIII.	Electives*				
		18			27-28

*Students are encouraged to complete six credits of electives (not Clinical courses) sometime during the first three years.

PROFESSIONAL CURRICULUM
SCHOOL OF VETERINARY MEDICINE

Year 2

	Semester 1	Cr.	Lect.	Lab	Clock Hrs.
I.	Microbiology	5	1 hr 3X/wk	3 hr 2X/wk	9
II.	Pathology	5	1 hr 3X/wk	3 hr 2X/wk	9
III.	Physiology	5	1 hr 4X/wk	3 hr 1X/wk	7
IV.	Public Health	2	1 hr 2X/wk		2
V.	Electives*				
		17			27

	Semester 2	Cr.	Lect.	Lab	Clock Hrs.
I.	Parasitology	3	1 hr 2X/wk	3 hr 1X/wk	5
II.	Virology	3	1 hr 2X/wk	3 hr 1X/wk	5
III.	Pathology	4	1 hr 2X/wk	3 hr 2X/wk	8
IV.	Pharmacology	4	1 hr 3X/wk	3 hr 1X/wk	6
V.	Toxicology	2	1 hr 2X/wk		2
VI.	Applied Nutrition	2	1 hr 2X/wk		2
VII.	Electives*				
		18			28

*Students are encouraged to complete six credits of electives (not Clinical courses) sometime during the first three years.

PROFESSIONAL CURRICULUM
SCHOOL OF VETERINARY MEDICINE

Year 3

	Semester 1	Cr.	Lect.	Lab	Clock Hrs.
I.	Surgery and Anesthesia	4	1 hr 2X/wk	4 hr 1X/wk	6
II.	Surgical Anatomy	1	1 hr 1X/wk	1 hr 1X/wk	2
III.	Theriogenology	2	2 hr/wk	2 hr 1X/wk	4
IV.	Large Animal Medicine	4	1 hr 5X/wk		4
V.	Small Animal Medicine	4	1 hr 4X/wk		4
VI.	Avian Medicine	1	1 hr 1X/wk		1
VII.	Clinical Pathology	2	1 hr 1X/wk	2 hr 1X/wk	3
VIII.	Clinics/Seminar Diagnostic and Therapeutic Techniques	1	None	3 hr 1X/wk	3
IX.	Therapeutics (Applied Pharmacology)	2	1 hr 2X/wk	None	2
X.	Electives*				
		21			29

	Semester 2	Cr.	Lect.	Lab	Clock Hrs.
I.	Surgery and Anesthesia	5	1 hr 3X/wk	4 hr 1X/wk	7
II.	Theriogenology	2	1 hr 1X/wk	2 hr 1X/wk	3
III.	Large Animal Medicine	5	1 hr 5X/wk		5
IV.	Small Animal Medicine	2	1 hr 5X/wk		2
V.	Lab Animal Medicine	2	1 hr 2X/wk		2
VI.	Wildlife, Zoo, and Aquatic Medicine	1	1 hr 1X/wk		1
VII.	Radiology	2	1 hr 1X/wk	2 hr 1X/wk	3
VIII.	Clinics/Seminar Diagnostic and Therapeutic Techniques	1	None	3 hr 1X/wk	3
IX.	Preventive Medicine (Herd Health)	2	1 hr 2X/wk	None	2
X.	Electives*				
		22			28

*Students are encouraged to complete six credits of electives (not Clinical courses) sometime during the first three years.

PROFESSIONAL CURRICULUM

SCHOOL OF VETERINARY MEDICINE

Year Four

The senior year consists of the 12 month period from June 1 to May 31 (or commencement) and is divided into 13 periods of approximately four weeks each. Nine periods are required of all students. Students must choose three additional elective periods and may use the one remaining period as either vacation or as an additional elective period.

The elective periods may be offered at UW-Madison, UW-River Falls, or at another appropriate institution. These may also include a preceptorship within a specialty practice such as avian medicine. Some of these may be of less than four weeks duration.

A. Required Blocks	Offered at	Suggested No. of Students at one time
1. Food Animal Medicine & Surgery	UW-Madison	10
2. Equine Medicine & Surgery	UW-Madison	12
3. Small Animal Medicine	UW-Madison	20
4. Small Animal Surgery	UW-Madison	14
5. Anesthesiology-Radiology-Intensive Care	UW-Madison	12
6. Laboratory Animal Medicine including Avian & Fur Bearing Animals	UW-Madison	16
7. Clinical Pathology, Diagnostic Micro., Public Health, Necropsy	UW-Madison	12
8. Ambulatory Clinic	UW-River Falls	12
9. Preceptorship (Mixed or Food Animal)	Practicing Veterinarian	30

Note: Prior to entering a preceptorship a student must complete either the Food Animal Medicine & Surgery block or the Ambulatory Clinic block plus either the Small Animal Medicine or the Small Animal Surgery block.

B. Elective Periods

Elective periods will be developed at UW-Madison. They may also be available at other appropriate institutions or at the same or other preceptorship sites and may be of less than four weeks duration.

Examples of Elective Periods are:

1. Dairy herd health
2. Swine herd health
3. Fur bearing animals
4. Primate Medicine
5. Preceptorship in a specialty practice
6. UW-River Falls specialty (Theriogenology)
7. Directed Research
8. Clinical specialty e.g. opthalmology, orthopedics.
9. Advanced Pathology/diagnostics
10. Food Hygiene
11. Wildlife animal medicine
12. Equine medicine
13. Avian medicine
14. Aquatic animal medicine
15. Regulatory animal medicine

C. Fourth Year Mini-Courses

These are short-term course in which students may enroll during their clinical periods. They will follow a different time-frame from that of the clinical periods. In some cases these courses will be used as a base for developing a Continuing Education effort. As such, topics of interest to farmers and practicing veterinarians as well as students will be offered.

Examples of such courses are:

1. Ethics
2. Jurisprudence
3. Practice Management
4. Herd Health Problems -- special topics
5. Interpersonal Skills, Group Processes, etc.
6. Poultry Production
7. Swine Production
8. Sheep Production
9. Dairy Cattle Management
10. Equine Management
11. Meat and Poultry inspection
12. Regulations governing the movement of animals
13. Business Management

D. Credits

The clinical periods will carry a credit value equivalent to one credit per week of full-time involvement. Hence, the usual credit assignment for the four-week period is four credits.

The mini-courses will be assigned credit according to the usual university standards for lecture course, i.e. one credit per 15 one-hour periods of contact instruction.

The required credit load for fourth year students will be a minimum of 48 (12 periods at four credits each) plus four required mini-courses.

FOUR YEAR SUMMARY

	Credits	
	Sem 1	Sem 2
Year 1	18	18
Year 2	17	18
Year 3	21	22
Year 4 (12 months)		
a) Clinical Periods	24	24
b) Mini-Courses	2	2
Total	82	84

166 credits required for graduation

Curriculum of The Faculty of Veterinary Medicine (FKV), IPB

No. (1)	Subject (2)	Lecture (hour) (3)	Lab. Work (hour) (4)	Credit (5)
SEMESTER 1				
1.	Physics	2	3	5
2.	Indonesian Language	2	0	2
3.	English	2	3	3
4.	Mathematics 1	3	0	3
5.	Chemistry 1	2	3	3
6.	Religion	2	0	2
7.	Pancesila (National Ideology)	2	0	2
		15	9	18
SEMESTER II				
1.	Mathematics II	3	0	3
2.	Biology	2	3	3
3.	Chemistry II	2	0	3
4.	Introduction to Econimics	2	3	3
5.	Introduction to Agriculture	1	0	1
6.	Rular Sociology	2	3	3
7.	Military Science	2	0	2
		15	9	18
SEMESTER III				
1.	Anatomy I	2	3	3
2.	Comparative anatomy	2	2	3
3.	Physiology I	2	2	3
4.	Histology I	2	2	3
5.	Management	3	3	4
6.	Biochemistry	3	3	4
		14	14	20

(1)	(2)	(3)	(4)	(5)
SEMESTER IV				
1.	Anatomy II	3	3	4
2.	Bacteriology	2	3	3
3.	Biochemistry II	2	3	3
4.	Physiology II	2	2	3
5.	Pharmacology & Toxicology	2	3	3
6.	Histology II	2	3	3
7.	Embryology	1	0	1
		14	17	20
SEMESTER V				
1.	Topographical Anatomy	0	3	1
2.	Pharmacology & Toxicology II	2	3	3
3.	Veterinary Nutrition	2	2	3
4.	Genetics	2	2	3
5.	General Animal Husbandry	2	0	2
6.	Extention	2	2	3
7.	Virology & Immunology	3	3	4
8.	General Pathology	4	0	4
		17	15	23
SEMESTER VI				
1.	Topographical Anatomy II	0	3	1
2.	Clinical Diagnostic & Livestock Judging	2	4	4
3.	Bacterial Diseases	2	0	2
4.	Physiological Reproduction & Artificial Insemination	2	2	3
5.	General Surgery & General Therapy	2	3	3
6.	Parasithology I	2	3	3
7.	Viral Diseases	2	0	2
8.	Rural Field Work	0	0	6
		13	12	24

(1)	(2)	(3)	(4)	(5)
SEMESTER VII				
1.	Porasitology II	2	3	3
2.	Statistical Methods	3	0	3
3.	Veterinary Public Health I	2	2	3
4.	Internal Veterinary Medicine I	3	0	3
5.	Special Pathology & Histopathology	4	3	5
6.	Social Research Methods	2	2	3
7.	Clinical Demonstration	0	3	1
		16	13	21
SEMESTER VIII				
1.	Surgery & Hoof Diseases	5	3	6
2.	Veterinary Public Health II	2	2	3
3.	Sterility & Obstetrics	2	2	3
4.	Internal Veterinary Medicine I	2	0	2
5.	Cooperative	2	0	2
6.	Clinical Pathology	2	3	3
7.	Clinical Demonstration	0	3	1
		15	13	20

(1)	(2)	(3)	(4)	(5)
SEMESTER IX				
1.	Pharmacy	1	3	2
2.	Veterinary Jurispindence	2	0	2
3.	Epidomiology	2	0	2
4.	Internship	-	-	8
5.	Paper (Skripsl)	-	-	3
5.	Regional Field Work & Seminar	-	-	4
				21

Note:

Other subjects or activities that the students must take are Rural Fielo Work or Kuliah Kerja Nyata (six credits) and Field Work or Kuliah Kerja Lapang (non-credit)