



Integrated Plant and Animal Breeding (iPAB)



Study Guide for the Summer Term 2017



GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

Integrated Plant and Animal Breeding (iPAB) - Timetable for the summer semester 2017 - preliminary version -

Day	Time	Module	Lecturer	Block	Lecture Room
Monday	08:15-9:45	M.CP.0016: Practical Statistics and Experimental Design in Agriculture	Becker, Kluth, Sharifi	B (Elective)	L06 (Albrecht-Thaer-Weg 3)
	14:15-15:45	M.Agr.0128: Statistical genetics, breeding informatics and experimental design	Schmitt	A (Compulsory)	L09 (Albrecht-Thaer-Weg 3)
	16:15-17:45	B.Bio.114: Angewandte Bioinformatik II	Morgenstern	B (Elective)	GZG 277, Goldschmidtstr. 1
Tuesday	14:15-19:00	M.SIA.A01: Organic livestock farming under temperate and tropical conditions	Knierim, Schlecht, Dundrum, Wachendorf	B (Elective)	Uni Witzenhausen (take the Cantus train, with your student card it's free)
	16:15-17:45	M.Agr.0138: Selection theory, design and optimisation of breeding programs	Simianer	C (Compulsory)	L09 (Albrecht-Thaer-Weg 3)
Wednesday	08:15-09:15	M.Agr.0138: Selection theory, design and optimisation of breeding programs	Simianer	C (Compulsory)	L09 (Albrecht-Thaer-Weg 3)
	10:15-11:45	M.Agr.0093: Environmental Impact of Genetically Modified Plants	Vidal	B (Elective)	L07 (Grisebachstr. 6 (Pflanzenpath. Inst.geb.))
	12:15-15:45	M.CP.0016: Practical Statistics and Experimental Design in Agriculture	Becker, Kluth, Sharifi	B (Elective)	L06 (Albrecht-Thaer-Weg 3)
	14:15-16:00	M.Forst.1524: Biotechnology and forest genetics	Kües	B (Elective)	FSR 5.1 (Büsgenweg 5)
	14:15-15:45	B.Bio.114: Angewandte Bioinformatik II	Morgenstern	B (Elective)	GZG 277, Goldschmidtstr. 1
	16:15-17:45	M.Agr.0128: Statistical genetics, breeding informatics and experimental design	Schmitt	A (Compulsory)	L05 (Albrecht-Thaer-Weg 3)
Thursday	16:15-17:45	M.Agr.0136: Journal club: key papers in animal and plant breeding (two-weekly)	Simianer	B (Elective)	L09 (Albrecht-Thaer-Weg 3)
Friday	10:15-11:45	Cp.0004: Plant diseases and pests in temperate climate zones	Koopmann, Ulber, Winter, Schumann, Liebe	B (Elective)	L07 (Grisebachstr. 6 (Pflanzenpath. Inst.geb.))
	10:00-12:00	M.Agr.0114: Sicherheitsbewertung biotechnologischer Verfahren i. d. Pflanzenzüchtung	Schiemann	B (Elective)	L04 (von-Siebold-Str. 4-8, Carl-Sprengel-Weg 1), L05 (Albrecht-Thaer-Weg 3)
	13:00-14:30	Cp.0004: Plant diseases and pests in temperate climate zones	Koopmann, Ulber, Winter, Schumann, Liebe	B (Elective)	L07 (Grisebachstr. 6 (Pflanzenpath. Inst.geb.))
	13:00-15:00	M.Agr.0114: Sicherheitsbewertung biotechnologischer Verfahren i. d. Pflanzenzüchtung	Schiemann	B (Elective)	L04 (von-Siebold-Str. 4-8, Carl-Sprengel-Weg 1), L05 (Albrecht-Thaer-Weg 3)

Biotechnological Applications in Plant Breeding, Möllers, Mo/Di
10.15 - 11.45, start in Carl-Sprengel-Weg 1 - L02

Biotechnological Applications in Plant Breeding, Möllers, Mo/Di
10.15 - 11.45, start in Carl-Sprengel-Weg 1 - L02

2 week block	preliminary: 2. - 13. Oct	M.Agr.0135: Seed Marketing	Spiller	B (Elective)	tba
2-week block, after 1st examination period	preliminary: 31.6. - 11.7.	M.Agr.0132: Molecular and biotechnological methods in plant and animal breeding	Tetens	B (Elective)	tba
preliminary Tue	preliminary 12.15 - 13.45	M.Agr.0134: Legal issues in plant and animal breeding	N.N.	B (Elective)	tba obs! Might not yet take place in summer term 2017

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1 Master degree program “Agricultural Sciences” with the specialisation “Integrated Plant and Animal Breeding”

“Integrated Plant and Animal Breeding” (iPAB) is a study program of the agricultural faculties of the Georg-August-Universität of Göttingen. iPAB is initially embedded in the master’s program “Agricultural Sciences”. It is planned that the program will be transferred into a consecutive Master degree program in the next years. All iPAB modules are taught in English. The study program is internationally oriented.

This Study Guide gives information about the organisation of the program.

1.1 Module codes

The iPAB module code system consists of the prefix M.Agr. and an ongoing number. Modules imported from other degrees i.e., Master of Sustainable International Agriculture, has the prefix M.SIA. and a number, similarly the modules from the master degree “Crop Protection” has the prefix M.Cp and a number. The modules imported from the Faculty of Forestry have the prefix M.Forst and modules from the Faculty of Biology the prefix M.Bio.

You can only earn Credits (see below) from modules that have the prefix M. Modules with the prefix B. are Bachelor level.

1.2 ECTS-credits

Each Module has a credit value. The credit is given according to the ECTS-credit system (European Credit Transfer System) and 6 credits correspond to the workload of 4-hour lectures or 8-hour practicals per week for one semester (16 weeks teaching period) and the preparation for those lectures/practicals and the examination. One credit corresponds to 30 hours workload, six credits to 180 hours workload. Most modules in the program have 6 credits. The Master’s thesis and the defense have in total 30 credits. A regular workload is 30 Credits per semester, i.e., 5 modules. The regular study period amounts to four semesters and adds up to 120 ECTS credit points, including the Master's thesis and the completion of all required examinations. The number of lectures a module has per week is called “weekly lecture hours” or WLH, in German: “Semester Wochen Stunden”: SWS which means semester hours per week.

1.3 Examination Periods

There are two examination periods per semester: One at the end of the semester and one at the beginning of the the following semester. The duration of the examination periods are 3 weeks of which one week is either the last week of the semester or the first week of the next semester. Students can choose to do the examination in the first or the second examination period. Failed examinations can be repeated two times (i.e. three times in total). Before the second repetition students must consult the advisory service and the iPAB-Coordinator. In case of block seminars examinations can be offered outside the examination periods.

1.4 Master thesis

A written application for admission for the master thesis must be submitted to the examination office at least 8 weeks before the submission of the thesis. The application forms can be obtained in the examination office. Requirements for admission for the master thesis include that students have earned at least 72 credits, and among those, all compulsory and at least four mandatory modules have been completed. The application should include: the topic of the thesis, name of first and second supervisor and signatures of confirmation by both supervisors. One of the supervisors must be a habilitated (qualified as a professor) and authorized examiner of the agricultural faculties Goettingen University. The master thesis must usually be written in English. The time frame for writing the thesis is 22 weeks with the possibility for extension of up to 30 weeks in special cases if the supervisors also agree to this. When the application for admission for the master thesis is submitted to the examination office, they will calculate the latest date for submission. Students may submit their thesis up to 4 weeks before this date but not earlier. If a thesis is submitted after the deadline/ latest date of submission the thesis is failed.

The master thesis may be conducted as a group work. The contribution of the individual to the group must be clearly distinguishable and separately assessable.

Colloquium to the master thesis

The colloquium will usually take place within six weeks after submission of the thesis. You arrange the date for the colloquium with the two supervisors. It consists of an introductory presentation (about 30 minutes) and a discussion (about 30 minutes) of the

master thesis. Its purpose is to prove that the examinee is able to cope with interdisciplinary and problem-specific questions on a scientific basis and is able to put them into the context of the field of international agricultural sciences.

2 Registration for examination: FlexNow

Registration for module examinations is done electronically by the students themselves in FlexNow:

<http://www.uni-goettingen.de/en/-for-students/45582.html>

(⇒ FlexNow exam registration).

The registration for written module examinations is to be done at least seven days before the examination date. Withdrawal without a reason (deregistration) is possible up to 24 hours before the examination. The registration for oral module examinations is also to be done at least seven days before the examination date. However deregistration is only possible up to seven days before the beginning of the examination. The registration for course supplementary practical module examinations should be done at least seven days before the examination period. Deregistration is possible up to seven days before the beginning of the examination – usually the beginning of the practical or project work. The registration for other course-supplementary module examinations should be done at the beginning of the courses. Deregistration is possible in the case of assignments up to the issue of the assignment subject, in the case of presentations, seminar papers and joint seminar papers up to two weeks before the date of the seminar/lecture.

Modules that have already been completed for the Bachelor's degree cannot be taken into account. Examination achievements can be taken into account only in one module of this degree program. Successfully completed modules can't be repeated.

How to register on Flexnow

To register for an examination, go to

<http://www.uni-goettingen.de/en/-for-students/45582.html>.

To get information on how you use FlexNow to register for exams

- Choose *FlexNow Information for students*

in the right column.

To register for exams

- Choose *Register/Cancel Registration for Exams*

in the upper blue bar.

First time you register for an examination you can see modules of all three profiles. It is very important that you search your module and register in the right profile. After the first registration you can only see modules of the selected profile and if you didn't register in the right profile you will have problems to find the modules when you want to register for further modules. If you didn't choose the right profile first time only the examination office in Göttingen can help you to change this.

Normally there are two offers for exams in a module. One offer in the first exam period and one in the second period. Please make sure that you check the exam date when you register so that your registration is for the right date.

How to find your grades on Flexnow

To find your grades, go to

<http://www.uni-goettingen.de/en/-for-students/45582.html>.

- Choose *"Summary of Academic Attainment"* in the upper blue bar and register with matriculation number and your usual password.
- There is a menu on the left side, where you choose *"Exam results"*.
- Click now on *"Load general information and exams"* and open *Studiengang: Agricultural Sciences (Master of Science)*.
- Here you find all passed, failed and registered exams and your grades.

In FlexNow, it is additionally possible to generate the record of performance. Log-in on

<http://www.uni-goettingen.de/en/-for-students/45582.html>

under *Summary of achievements*, (left column) you can choose either ⇒ *"create (verifiable)"*, *"show (verifiable)"* or *"create (not verifiable)"* ⇒ click on *"Load general information and exams"*. If you choose verifiable you can send this to eventual

employers without a signature. There is an internet link and a number. The recipient can within the next three months use this link within the next three months to check that it is a paper from the university.

3 Certificate and transcript

After the supervisors submit the report with the grade of your master thesis to the examination office they automatically send you an email with the form for application of certificate and transcript. Please check in FlexNow if all modules are registered in the right block before you fill the form and submit it. The examination office issues the certificate and transcript as soon as they receive the form back. The certificates must be signed by both the deans of Witzenhausen and Göttingen, therefore it might take up to four weeks before the certificates are ready. No certificates are sent abroad by the examination office. In case you want to go home before your certificate is ready please discuss this with the examination office.

4 Legalization of the master certificate

The certificate and transcript have to be legalized by the government of Lower Saxony, otherwise it might not be recognised in your own country. The examination office will inform you where this is done. For some countries also the embassy has to approve the certificates before they can be recognised in the respective countries. It is the responsibility of the students themselves to get the legalization. Please contact your own embassy to get the information what is needed for your specific country.

5 University of Goettingen

5.1 Examination office

The examination office is located at Büsgenweg 5, 37077 Goettingen.

<http://www.uni-goettingen.de/de/sh/48321.html>

There you can get forms and solve other academic/administrative matters. In case you could not take an exam due to illness, submit the sick leave note provided by the doctor to the examination office in Göttingen within three days after the exam. You may send a scanned copy first by Email and later post the original.

Opening hours of the examination office:

Monday, Wednesday and Friday: 9:00 a.m. to 10:30 a.m.

Tuesday: 14:00 p.m. to 15:30 p.m.

Thursday: 10:30 a.m. to 12:00 a.m.

In case you want to go to the examination office outside the opening hours please inform Mrs. Schachtebeck in advance on: cschach@uni-goettingen.de or Tel. 0551-3910272.

In case you have problems with FlexNow, registration/deregistration, or others, Mrs. Christiane Schachtebeck and Anja Kalkau (paagrar@uni-goettingen.de) can help.

5.2 Exams calendar

Examination dates are published in the Examination calendar (choose "MSc Agrarwissenschaften - IPAB" in the left column) of the Faculty of Agricultural Sciences in Göttingen:

<http://www.fakagrar.uni-goettingen.de/pruefkalender//>

and in the FlexNow system.

5.3 UniVZ

The **UniVZ** is the course schedule of all modules offered at the University of Goettingen. You can search for modules and also for rooms/facilities or faculty members.

<http://univz.uni-goettingen.de/>

5.4 E-campus

Under E-campus students find all relevant information for their studies and links to UniVZ, StudIP, FlexNow, self service functions and email.

<https://ecampus.uni-goettingen.de/ecampus/> (also available in English language)

Log in with your username (firstname.lastname) and your usual password.

5.5 StudIP

StudIP is a platform where you can find information and data files to most of the modules offered in Goettingen. Please note Witzenhausen have their own Platform.

5.6 Self-Service functions

To enter the **self-service functions** of the University click on “*Self-service functions for students*” and log in with your matriculation number or your user name and your usual password. You can:

- change your contact details (*Kontaktdaten ändern – Anschriften, Telefon, Fax und E-Mail*)
- get new TAN-numbers (*TANs anfordern*)
- re-register (*Rückmeldung*)
- change pin or password (*PIN/Passwort ändern*)
- print certificates (*Bescheinigung ausdrucken*)
- exmatriculate (*Exmatrikulation*)

To leave the self-service functions, use the button *Abmelden*.

5.7 Email

You have an **email account** from the University of Goettingen, which can be checked here:

<http://webmail.uni-goettingen.de>.

5.8 SUB

The library (Niedersächsische Staats- und Universitätsbibliothek Göttingen, SUB) is one of the five largest scientific libraries in Germany. The central library (Zentralbibliothek) can be found here:

Platz der Göttinger Sieben 1,

37073 Göttingen

<http://www.sub.uni-goettingen.de/index-e.html>

Opening hours:

Monday – Friday 07.00 a.m. to 01.00 a.m.

Saturday – Sunday 09.00 a.m. to 10.00 p.m.

There is a lot of room for reading and studying. The copy machines may be used with coins or with a copy-card, which can be bought for € 5 (100 copies) in the counter

(Monday to Wednesday and Friday 9.00 a.m. to 16.00p.m., and Thursday from 9.00 a.m. to 18.00 p.m.). The computers in the SUB can be used with the usual student login. Furthermore, you can connect your personal laptop to the University's W-LAN network.

There are other branch libraries that belong to the SUB, containing ample literature. An example of this is the branch library of economics (Platz der Göttinger Sieben 3, 37073 Göttingen).

6 Counselling Service

If you have any questions regarding your studies, you can get help with the organization of your studies, if you have questions about the program or module combinations, and also for specific questions e.g. about the ECTS-credit system. For an appointment, please contact:

- Mrs. Monika Carlsson (ipAB@uni-goettingen.de, Tel.: 0551-39 20848)
- Mrs. Nadine Würriehausen (nwuerri@uni-goettingen.de, Tel.: 0551-39 13661)
- Mrs. Grete Thinggaard (gthingg@uni-goettingen.de, Tel.: 0551-39 33398)

....and when the studies don't progress as they should?

Individual personal conflicts and crises may cause that the studies don't progress according to schedule. If you experience such problems, don't hesitate to contact the Psychosocial Counseling office, where Psychologists are available to help you manage your problems. Counseling is anonymous and free of charge.

<http://www.studentenwerk-goettingen.de/index.php?id=99&L=1>

7 Students' initiatives in Göttingen

7.1 Student Council

The Student Council organises various activities for the students and represent the students' interests in various committees and inform you of current events in your newsletter!

<http://www.uni-goettingen.de/de/43310.html>

7.2 AG (workshop) Internationales/ Project Team International

The aim of this project is to have a meeting point for all the students of the faculty that are interested in topics related to international agricultural issues. The goal is, as in the other project teams of the faculty, to close the gap between university and practice, to discuss current topics and to establish contacts with policy makers, institutes, companies and international organizations. Activities:

- Invite experts to hold talks at the university with discussions at the end.
- Plan excursions to get to know better the agriculture in Germany and to visit international companies to establish contact with future employees.
- Create a network with different institutes and international organizations.

<http://www.uni-goettingen.de/en/15338.html>

From the AG: Join us and have fun getting known other students and planning interesting activities at the faculty. We are meeting during the semester on Thursdays at 8:00 pm in Autonomicum. For more information write us an E-Mail: aginternationales@gmail.com

7.3 Study Buddy Program

The Study Buddy Program arranges partnerships between German and foreign students to help them settling in. Besides from these partnerships the program regularly offers you different activities and trips in and around Göttingen.

<http://www.uni-goettingen.de/en/108752.html>

8 Improvement Suggestions

If you have any ideas, suggestions or criticism to bring in for the improvement of the study guide or even the study program, please hand them in to Mrs. Carlsson (iPAB@uni-goettingen.de).

9 List of all iPAB Modules

BLOCK A - Compulsory Courses (Σ 18 ECTS)

The following 3 modules with an amount of 18 C have to be completed.

M.Agr.0126: Quantitative genetics and population genetics (6 ECTS, 4 WLH)

(1st semester; winter term)

M.Agr.0127: Breeding schemes and programs in plant and animal breeding (6 ECTS, 4 WLH) *(1st semester; winter term)*

M.Agr.0128: Statistical genetics, breeding informatics and experimental design (6 C, 4 SWS) *(2nd semester; summer term)*

BLOCK B - Elective Courses (Σ 30 ECTS)

Five modules with an amount of at least 30 C have to be completed out of the following list.

B.Bio.114: Angewandte Bioinformatik II (10 C, 7 WLH) *(Lecture: summer term; Exercises: winter term)*

M.Agr.0020: Genome analysis and application of markers in plant breeding (6 C, 4 WLH) *(winter term)*

M.Agr.0093: Environmental Impact of Genetically Modified Plants (3 C, 2 WLH) *(summer term)*

M.Agr.0114: Sicherheitsbewertung biotechnologischer Verfahren i. d. Pflanzenzüchtung (6 C, 4 WLH) *(summer term)*

M.Agr.0129: Poultry breeding and genetics (6 C, 4 WLH) *(winter term)*

M.Agr.0130: Breeding Informatics (6 C, 4 WLH) *(winter term) (from winter term 17/18 on)*

M.Agr.0132: Molecular and biotechnological methods in plant and animal breeding (6 C, 4 WLH) *(summer term)*

M.Agr.0133: Genetic resources (6 C, 4 WLH) *(winter term) (from winter term 17/18 on)*

M.Agr.0134: Legal issues in plant and animal breeding (3 C, 2 WLH) *(summer term)*

M.Agr.0135: Seed Marketing (6 C, 4 WLH) *(summer term)*

M.Agr.0136: Journal club: key papers in animal and plant breeding (6 C, 2 WLH)
(each semester; duration of 2 semesters)

M.Agr.0137: Internship (9 C, 6 WLH) (each semester) (from winter term 17/18 on)

M.Cp.0004: Plant diseases and pests in temperate climate zones (6 C, 4 WLH) (summer semester)

M.Cp.0016: Practical Statistics and Experimental Design in Agriculture (6 C, 4 WLH)
(summer term)

M.Forst.1524: Biotechnology and forest genetics (6 C, 4 WLH) (summer term)

M.SIA.A01: Organic livestock farming under temperate and tropical conditions (6 C, 4 WLH) (summer term)

M.SIA.A02M: Epidemiology of international and tropical animal infectious diseases (6 C, 4 WLH) (winter term)

M.SIA.E34: Economic Valuation of Ecosystem Services in Developing Countries (6 C, 4 WLH) (winter term)

M.SIA.E11: Socioeconomics of Rural Development and Food Security (6 C, 4 WLH)
(winter term)

M.SIA.E13M: Microeconomic Theory and Quantitative Methods of Agricultural Production (6 C, 4 WLH) (winter term)

M.SIA.I14M: GIS and Remote Sensing in Agriculture (6 C, 4 WLH) (winter term)

M.SIA.P13: Agrobiodiversity and plant genetic resources in the tropics (6 C, 4 WLH)
(winter term)

BLOCK C - Compulsory Courses (Σ 12 ECTS)

The following 2 modules with an amount of 12 C have to be completed.

M.Agr.0131: Biotechnology and molecular genetics in plant and animal breeding (6 C, 4 WLH) (1st semester; winter term)

M.Agr.0138: Selection theory, design and optimisation of breeding programs (6 C, 4 WLH) (2nd semester; summer term)

BLOCK D - Free elective modules ($\Sigma 30$ ECTS)

Five modules with an amount of at least 30 C have to be completed. Modules can be choosen from the whole list of modules by the Faculty of Agriculture.

We strongly recommend you to choose the following module:

M.Agr.0110: Introduction to the statistical program R (3 C, 2 SWS) (*winter term*)

Master thesis (24 ECTS) & Master's defense (6 ECTS): $\Sigma 30$ ECTS

(Credit points: C = ECTS; Modules numbers written in **BOLD**: This modules were newly established specifically for iPAB)

10 Exemplary study plan for “Integrated Plant and Animal Breeding” (iPAB)

Sem. Σ C*	Thematic Modules					Methodic Modules
	Module	Module	Module	Module	Modul	Modul
1. Σ 30 C	Block A Quantitative genetics and population genetics 6 C	Block A Breeding schemes and programs in plant and animal breeding 6 C	Block B Elective Module 1 6 C	Block B Elective Module 2 6 C		Block C Biotechnology and molecular genetics in plant and animal breeding 6 C
2. Σ 30 C	Block A Statistical genetics, breeding informatics and experimental design 6 C	Block B Elective Module 3 6 C	Integrated Breeding, Block B Elective Module 4 6 C	Integrated Breeding, Block B Elective Module 5 6 C		Block C Selection theory, design and optimisation of breeding programs 6 C
3. Σ 30 C	Free Elective Module 1 6 C	Free Elective Module 2 6 C	Free Elective Module 3 6 C	Free Elective Module 4 6 C	Free Elective Module 5 6 C	
4. Σ 30 C	Master thesis (24 ECTS) & Master's defense (6 ECTS): Σ30 ECTS					
Σ 120 C						

11 Directory of Modules

In the Directory of Modules is a list of all iPAB Modules listed according to number, a list of compulsory, mandatory and elective modules with the full module descriptions of each of the modules.

SWS: Semester Wochen Stunden equals WLH: Weekly lecture hours (4 SWS/ WLH gives 6 ECTS).