

Project Group Presentation

Winter Term 2019/20

Master Computer Science & Master Computer Engineering

Matthias Fischer

- Monday, July 8th, 4:15pm,
- Rooms O1 and O1.258

Agenda

Joint Session for CE + CS Students

16:15 Why Project Groups? Registration and Requirements

16:30 **Mixed Project Groups** – Room: **O1**

After the last talk: CE students move to **O1.258** CS students stay here

Parallel Sessions

17:35 **CS Project Groups** – Room: **O1**

17:35 **CE Project Groups** – Room: **O1.258**

Discussion Session

If you plan to take part in a group in Summer Term 2019, please stay here!

17:55 (CS), 18:25 (CE): In front of or in room **O1**, **O1.258**

- build small groups for questions, discussion, application, declare personal interest
- **CE students (room O1.258)** can first discuss with CE advisors and afterwards come back to **O1**
- **Mixed PG advisors: Please wait for CE students !!!**

Mixed Project Groups (2x10 ECTS, 2x9 ECTS)

accept both
Computer Science and
Computer Engineering
students

CS Project Groups (2x10 ECTS)

accept
Computer Science
students

CE Project Groups (2x9 ECTS)

accept Computer
Engineering students
(and EE students, not
the concern today)

Mixed Project Groups (2x10 ECTS, 2x9 ECTS)

16:30	Distributed Urban Drone Environment Cooperative Mobile Systems, <i>Christoph Sommer</i>
16:40	Resource Allocation in disTributed Systems Algorithms and Complexity, <i>Friedhelm Meyer auf der Heide</i>
16:50	Defining and Optimizing OpenCL Benchmarks for FPGAs High-Performance IT Systems, <i>Christian Plessl</i>
17:00	Distributed Embedded Systems Distributed Embedded Systems, <i>Falko Dressler</i>
17:10	Digital Tools for Strategic Planning Advanced Systems Engineering, <i>Roman Dumitrescu</i>
17:20	intEr- and iNTrA-domAin Network function chaininG in multi-cLoud Environment Computer Networks, <i>Holger Karl</i>

CS Project Groups (2x10 ECTS)

17:35	Knowledge Graphs Data Science, <i>Axel Ngonga</i>
17:45	Data Science Suite Data Science, <i>Axel Ngonga</i>

CE Project Groups (2x9 ECTS)

17:35	Disaster Response Robots GET Lab - Technische kognitive Systeme, <i>Bärbel Mertsching</i>
17:45	Signal Processing and Machine Learning over Acoustic Sensor Networks Communications Engineering, <i>Jörg Schmalenströer</i>
17:55	Reinforcement Learning for Electric Motor Control Power Electronics and Electrical Drives, <i>Joachim Böcker</i>
18:05	Brain sensing with EEG and signal processing Signal and System Theory, <i>Peter Schreier</i>
18:15	Design & Implementation of a HexaPod Computer Engineering, <i>Sybille Hellebrand</i>

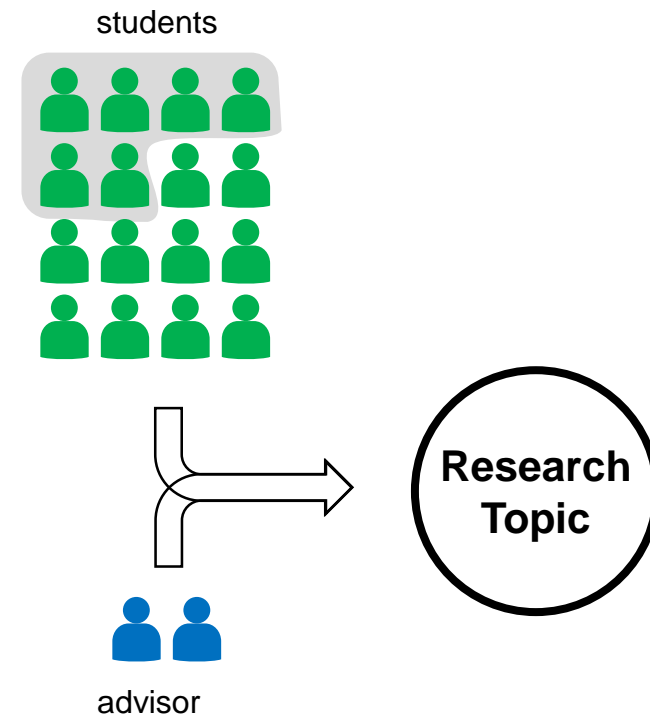
Definition

Project Group

Group of about 8 – 16 students working together on a research-related project

- Upper limit 16 holds for all groups!
- Lower limit 6 in particular situations!

Research topics
from the advisor's field of interest



Duration: **one year** (two terms)

Default language is English.

If all participating students agree, the group can be held in German.

Aims: Improvement of character building (1/2)

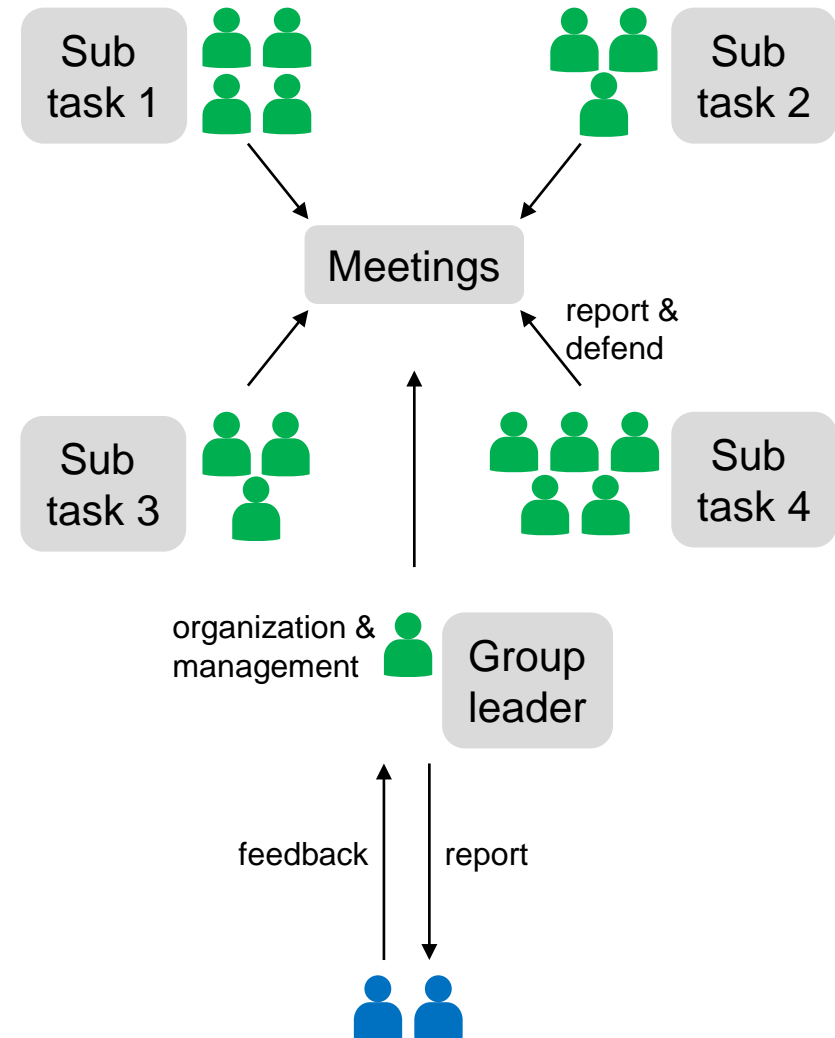
Project Group

Practical experience in **teamwork** and **organization** of a project

- Build your own **personnel structure**, similarly to an industrial team
- **Delegation** of sub tasks and responsibilities to subgroups

Division of tasks involves

- the necessity to **report** at regular intervals
- and to **defend** the own work

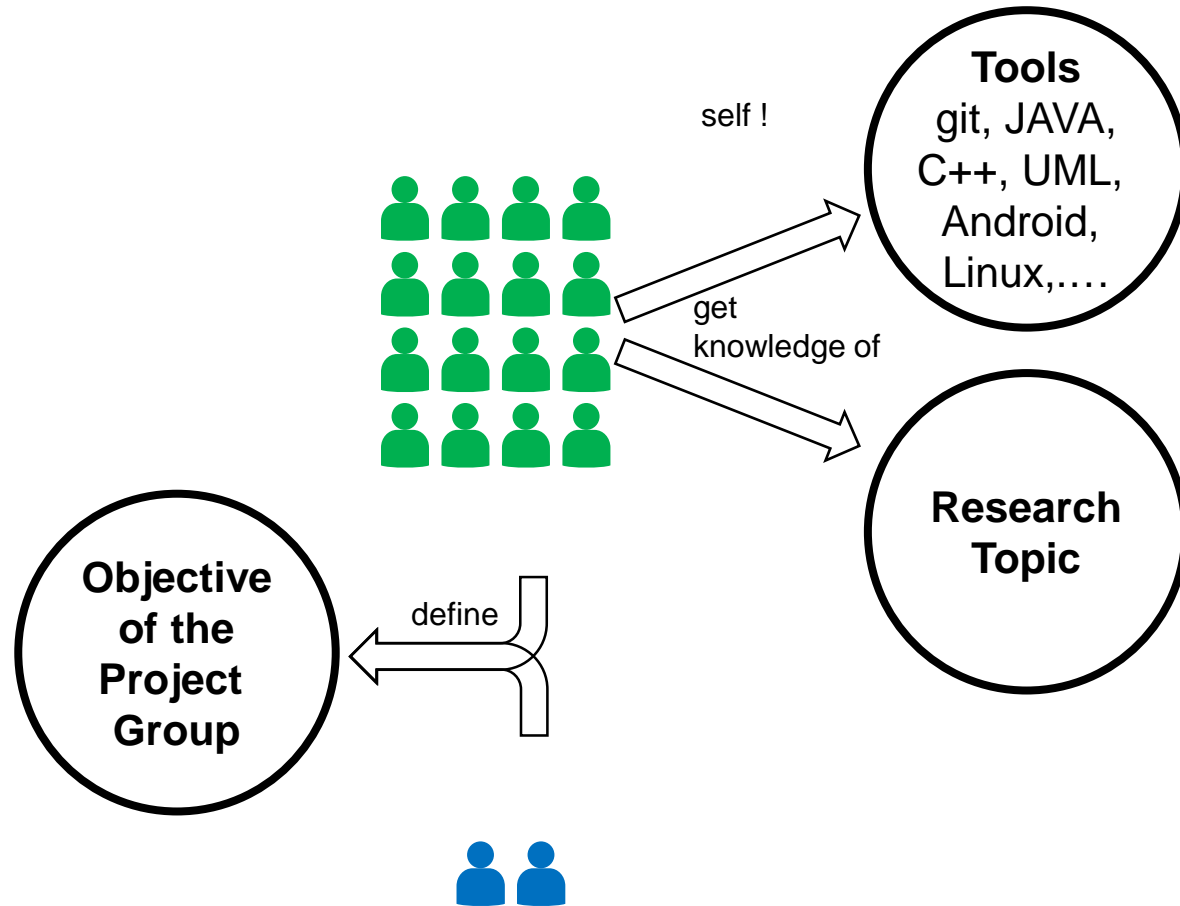


Aims: Improvement of character building (2/2)

Project Group

Self-organization

- **Define the aims** on your own together with the advisors
- **Self training** with necessary tools, methods and approaches



Outcome

Project Group

Your our outcome



You learn

- systematic and methodic working
- comprehensive development processes (including final report and documentation)

You

- will be intensively prepared for industrial practice
- approach current research topics
(often students write their **master's theses** in the same field and research topic)

Advisor's outcome



- Project groups are a means for research
- Implementation and execution of research

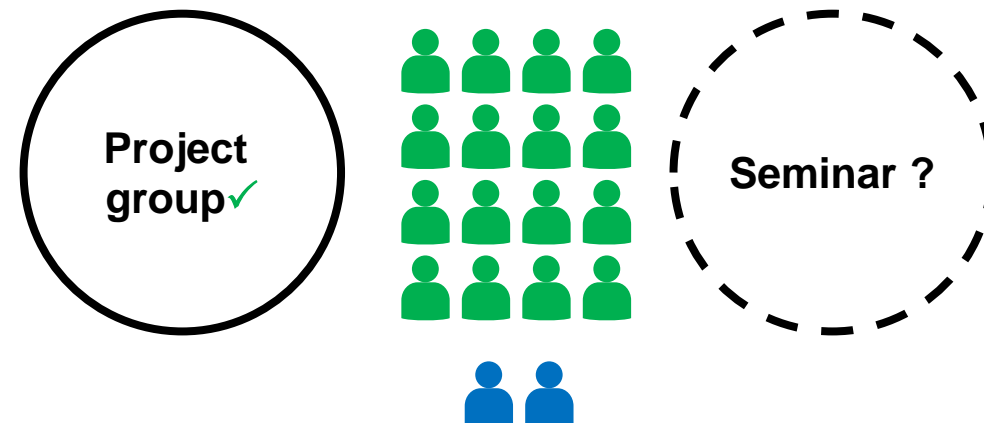
Seminar

Project Group

Seminar as parallel course

- the organizer can provide a seminar parallel to the project group
- the seminar is a separate course
- the organizer determines whether participation is mandatory or optional
- the organizer decides whether such a seminar is available or not

Please note the announcements of the organizer



Requirements for Participation

Project Group

Project group **can only be started**
when the **bachelor's degree** has been successfully **completed**

Bachelor's degree is successfully **completed**, when

- all examinations have been passed and
- the thesis' 4.0 confirmation is handed over to the examination secretariat (Lessmann, Gühlich,...)
 - by **31 March** (PGs starting summer term) and
 - by **30 September** (PGs starting winter term)

Requirements for Participation

Project Group

Project group **can only be started** when the **enrollment in the master's program** has been **completed**

Students of the bachelor's program,

- who reach the 4.0 confirmation or examinations only on the 31st of March or on the 30th of September,
- must therefore enroll for the Master's program in the relevant period of the change of studies (**by 21 September, see uni webpage**)
- you can submit proof of successful completion of your studies (Bachelor's certificate and deed or a corresponding certificate from the office responsible for issuing the deed) **by 23 October, see uni webpage**

How to Get a Project Group

New Method to Match Students to Project Groups

New method consist of 4 phases:

- **Phase1:** PAUL registration
July 29 - August 4, only **one week** !
 - **Phase 2:** Assignments & Preferences
August 10 - September 15
 - **Phase 3:** Stable Marriage
September 23 - 27
 - **Phase 4:** Notification & Decision
September 30
- Advisor final grading: September 16 - 22

Juli		August		September		Oktober	
1 Mo	27	1 Do		1 So		1 Di	
2 Di		2 Fr		2 Mo	36	2 Mi	
3 Mi		3 Sa		3 Di		3 Do	Tag der Dt. Einheit
4 Do		4 So		4 Mi		4 Fr	
5 Fr		5 Mo	32	5 Do		5 Sa	
6 Sa		6 Di		6 Fr		6 So	
7 So		7 Mi		7 Sa		7 Mo	Vorl Beginn 41
8 Mo	28	8 Do		8 So		8 Di	
9 Di		9 Fr		9 Mo	37	9 Mi	
10 Mi		10 Sa		10 Di		10 Do	
11 Do		11 So		11 Mi		11 Fr	
12 Fr	Vorl Ende	12 Mo	33	12 Do		12 Sa	
13 Sa		13 Di		13 Fr		13 So	
14 So		14 Mi		14 Sa		14 Mo	42
15 Mo	29	15 Do		15 So		15 Di	
16 Di		16 Fr		16 Mo	38	16 Mi	
17 Mi		17 Sa		17 Di		17 Do	
18 Do		18 So		18 Mi		18 Fr	
19 Fr		19 Mo	34	19 Do		19 Sa	
20 Sa		20 Di		20 Fr		20 So	
21 So		21 Mi		21 Sa	Rückmeldung	21 Mo	43
22 Mo	30	22 Do		22 So		22 Di	
23 Di		23 Fr		23 Mo	39	23 Mi	
24 Mi		24 Sa		24 Di		24 Do	
25 Do		25 So		25 Mi		25 Fr	
26 Fr		26 Mo	35	26 Do		26 Sa	
27 Sa		27 Di		27 Fr		27 So	Ende der Sommerzeit
28 So		28 Mi		28 Sa		28 Mo	44
29 Mo	31	29 Do		29 So		29 Di	
30 Di		30 Fr		30 Mo	40	30 Mi	
31 Mi		31 Sa				31 Do	Reformationstag

How to Get a Project Group

PAUL registration

Phase 1 – PAUL registration

- July 29 - August 4, only **one week** !
- You register only for one “virtual” project group:
“**L.079.07099 All Project Groups Winter Term 2019/20**”
- The course captures the registration for all project groups, here you cannot choose your preferred groups!
- You can see all project groups in the Course Catalogue, but you can't register for them

How to Get a Project Group

PAUL registration

Registration in PAUL is only possible

- if the **re-registration (renewal of matriculation)** for the winter semester has been completed before then!
- The re-registration is done by paying the enrollment fee <https://www.upb.de/zv/3-3/formalitaeten/rueckmeldung>

Please note!

- Bank transfer takes a few days.
- The university's administration also takes a few days to book the money.
- Registration for project groups is only possible once both have been completed.

We therefore HIGHLY recommend that you re-register and renew your matriculation, i.e. pay the enrollment fee **NOW!** **DON'T WAIT!**

We will not accept any late registration for project groups due to too late renewal of matriculation. **NO EXCEPTIONS!**

(CE students: The one-week registration phase is only valid for PGs of ET organizers participating in this procedure.)

How to Get a Project Group

Assignments & Preferences

Phase 2 – Assignments & Preferences

- August 10 - September 15

Consist of 2 steps:

Step 1

- Students state the preferences for all project groups
- All means all and not just 1 or 2 or just the one you like!

Do students have to participate in a project group they do not like?

→ No! See below

How to Get a Project Group

Assignments & Preferences

Phase 2 – Assignments & Preferences

- August 10 - September 15

Consist of 2 steps:

Step 2

- Project group advisors provides an "assignment"
- Used to test student's suitability for a given project group
- Students fill in these assignments for the project group they are interested in

Assignment can be

- Empty (e.g., if the organizers do not require a precondition for participation)
- Programming assignments
- Free-text answers
- Placeholder for a personal interview
- ... whatever the organizer needs

How to Get a Project Group Assignments & Preferences

Phase 2 – Assignments & Preferences

- August 10 - September 15

Consist of 2 steps:

Both Steps

- Where?
Tool chain by Jupyter and nbgrader extension
- You can log in starting on 10th August

For how many project groups should I take the test?

Recommendation

- Minimum: 3
- Better: 4 - 5
- More than five? → Waste of time

How to Get a Project Group

Stable Marriage

Phase 3: Stable Marriage

- **September 23 - 27**
- The project group advisors score the assignments of the students with points (September 16 - 22)
- The more points a student gets from the advisor, the greater the chance of a project group seat

Now we apply the **Stable Marriage algorithm**

- Scores rank students from project groups advisor's perspective
- Preferences of the students rank the project group from student perspective
- Based on both, we compute a stable marriage
- The Stable Marriage algorithm matches students to project groups
- Each student gets a project group!

How to Get a Project Group

Stable Marriage

Stable Marriage - Wikipedia

“ A matching is a mapping from the elements of one set to the elements of the other set.

A matching is not stable if:

1. There is an element A of the first matched set which prefers some given element B of the second matched set over the element to which A is already matched, and
2. B also prefers A over the element to which B is already matched.

In other words, a matching is stable

when there does not exist any match (A, B)

by which both A and B would be individually better

off than they are with the element to which they are currently matched. “

How to Get a Project Group

Notification & Decision

Phase 4: Notification & Decision

- **September 30**
- The students are informed which project group they have been assigned
(We do not yet know how you get informed, probably by PAUL)
- Final result will be entered into PAUL,
students move from virtual project group to the actual course by PAUL administration

How to Get a Project Group

Notification & Decision

Phase 4: Notification & Decision

- September 30

Do students have to participate in a project group they do not like?

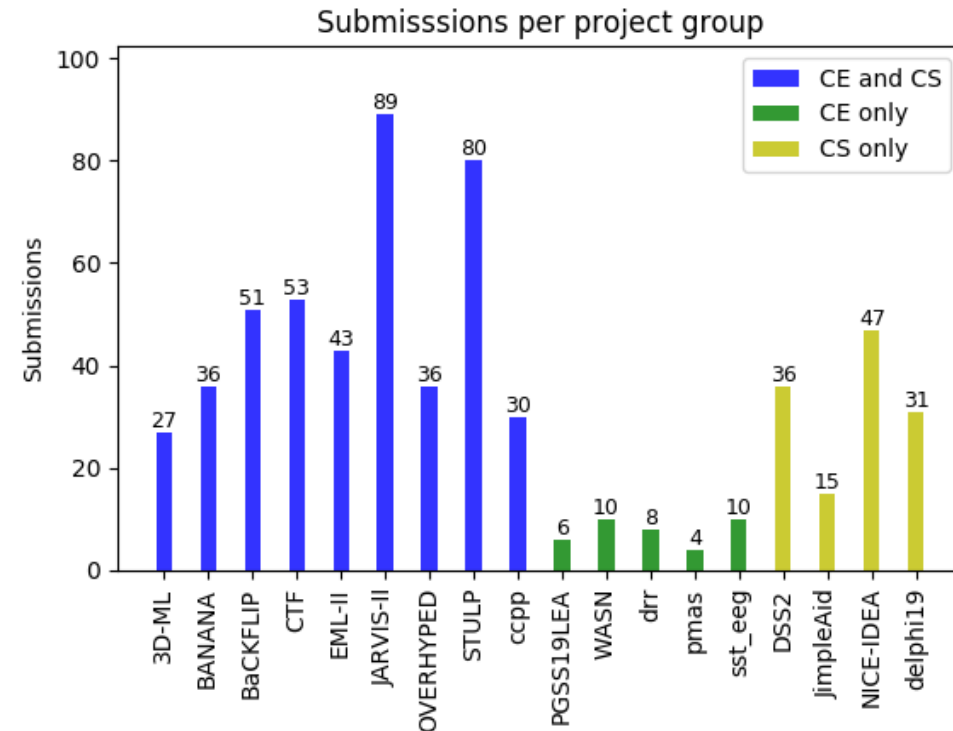
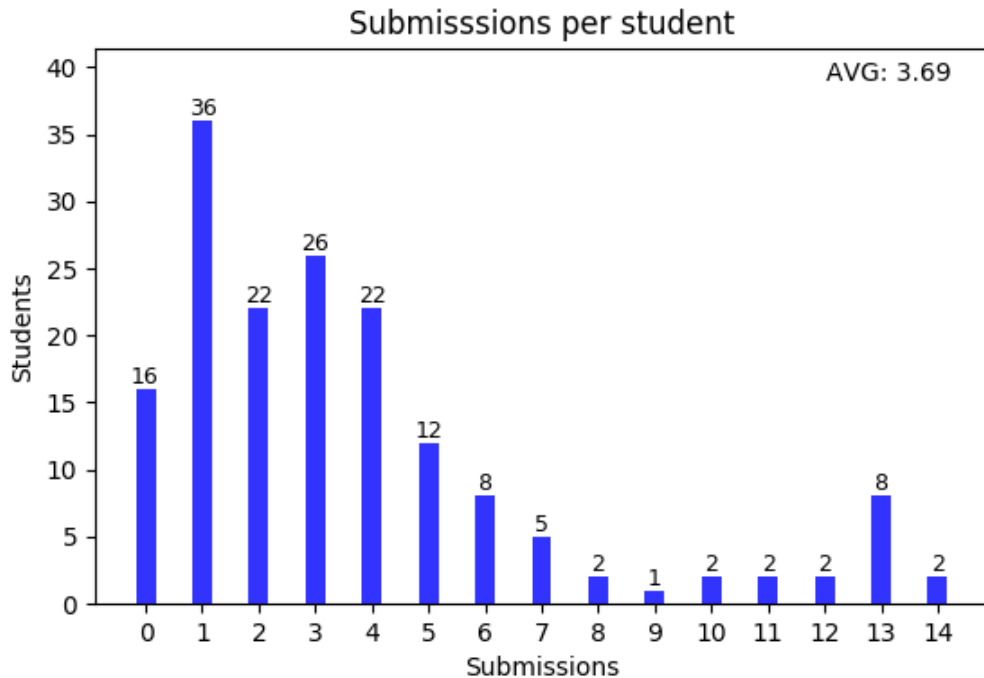
1. No, they can refuse the assigned project group!
However, they will not get another project group!
2. The only exception is:
 - two students wish to swap seats and receive the approval from both advisors, they can do so
 - Seats become available (e.g., because students have cancelled) and advisors agree

How is this organized?

- Students ask the advisors by email
- Advisors announce free places (e.g. webpage, e-mail)

Example: Past project group assignment summer term 2019

Number of submitted assignments



- If you do not submit an answer for a particular project group, you will be assigned a (very low) random score for this project group.
- So, in principle, you do not have to fill in any assignment, but that results in you being assigned to a random project group.
- You should do this only for project groups in which you will not participate under any circumstances.

Example: Past project group assignment summer term 2019

Result of registration in PAUL:
172 students

Number of students assigned by the algorithm:
166 students

5 students excluded: no preferences given

All CS seats except for 5 are full

A	B	C	D	E	F
		allocated	vacant	max	min
CS+CE	3D-ML	10	full	10	6
	BaCKFLIP	14	full	14	6
	BANANA	16	full	16	6
	ccpp	12	4	16	6
	CTF	12	full	12	6
	EML-II	10	full	10	6
	JARVIS-II	16	full	16	6
	OVERHYPED	14	1	15	6
	STULP	12	full	12	6
CS only	delphi19	8	full	8	6
	DSS2	16	full	16	6
	NICE-IDEA	16	full	16	6
	JimpleAid		canceled		
CE only	PGSS19LEA	2	14	16	0
	drr	0	10	10	0
	pmas	0	5	5	0
	sst_eeg	4	2	6	0
	WASN	4	6	10	0
		166			
	CS Students	153			
	CE Students	13			
		166			

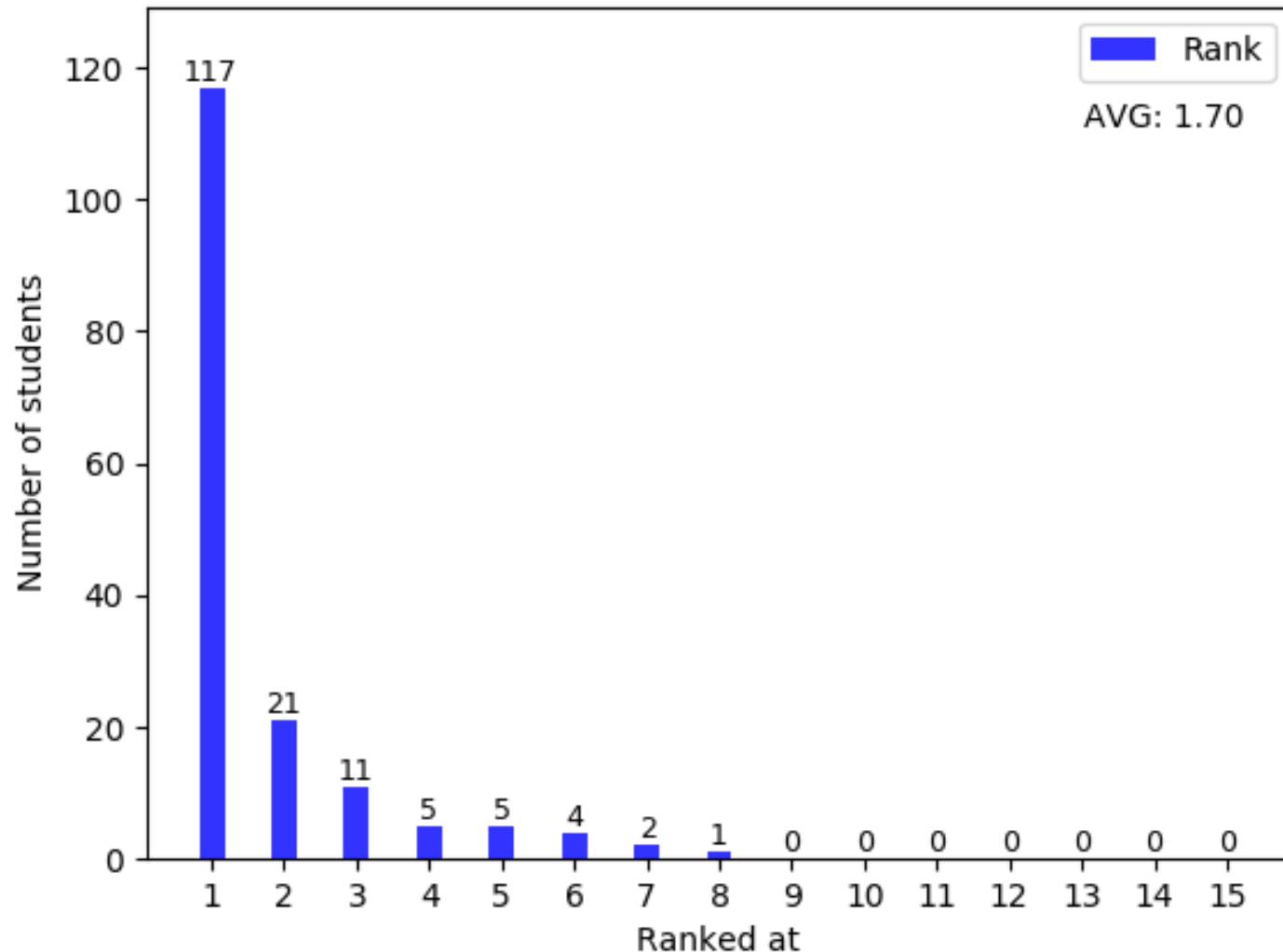
Example: Past project group assignment summer term 2019

How many students got their

1st preference

2nd preference ?

Out of 166 students,
only 12 students reached
rank 5 or worse



More Information, Webpages, Links, pdf Files

Main web page for project groups: <http://www.upb.de/cs/pg>

- **Listing** of all project groups (each listed group points to advisor's PG web page)
- Information of the overall **registration and notification process**
see pdf <http://cs.upb.de/fileadmin/informatik/Studium/Studienelemente/Projektgruppen/PG.pdf>
- **Guidelines for project groups** (Rahmenrichtlinien für Projektgruppen)
follow the links „guidelines for project groups / Rahmenrichtlinien für Projektgruppen“
Please read it before you start a project group!

Bachelor Students who cannot apply electronically via PAUL due to missing master status register in written form via the printed form

- German: "Antrag auf Zulassung zu einer Lehrveranstaltung in PAUL"
http://www.upb.de/fileadmin/paul-info/Formulare/Antrag_Anmeldung.pdf
English: "Application for admission to a course "
http://www.upb.de/fileadmin/paul-info/Formulare/Antrag_Anmeldung_english.pdf
both on: <http://www.upb.de/studium/paul-info/formulare>
- **AND:** Send an email to PAUL to apply for project group's registration