



How to Decrease the Drop-out Rate of Computer Science Students

DAAD2019

Challenges and results at ELTE Faculty of Informatics

Prof. Zoltán Horváth, dean

hz@inf.elte.hu

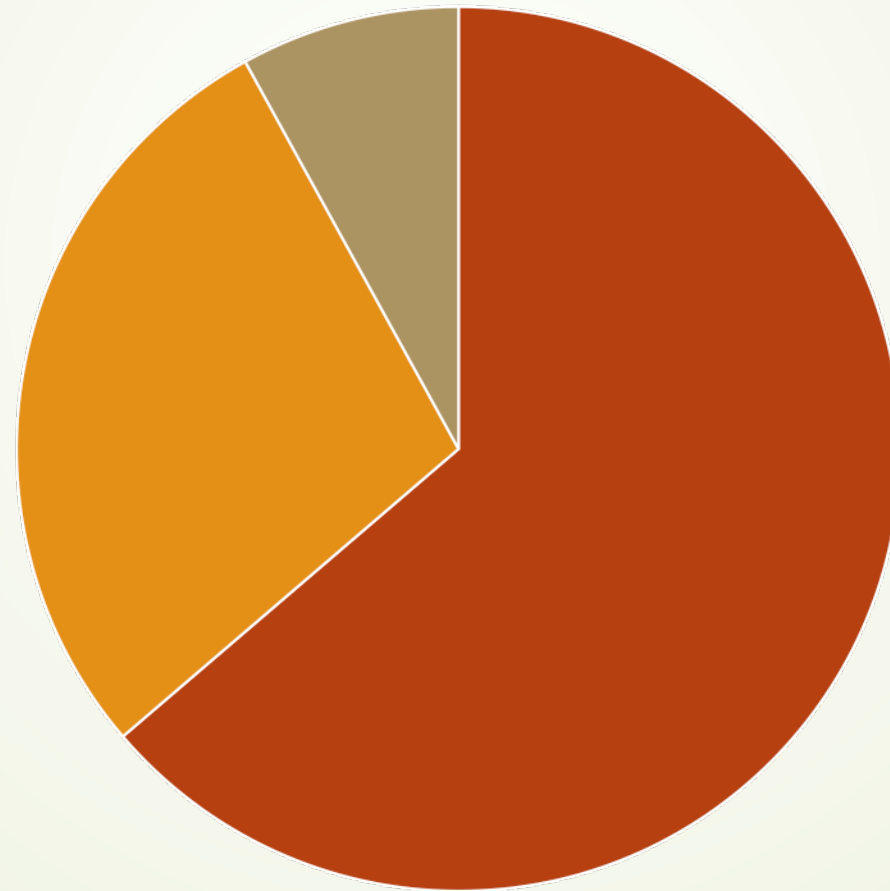
Rita Takács, student counsellor

takacsrita@inf.elte.hu

Number of Students (2010-2016)

Graduated: 28%
Number of
students: 821

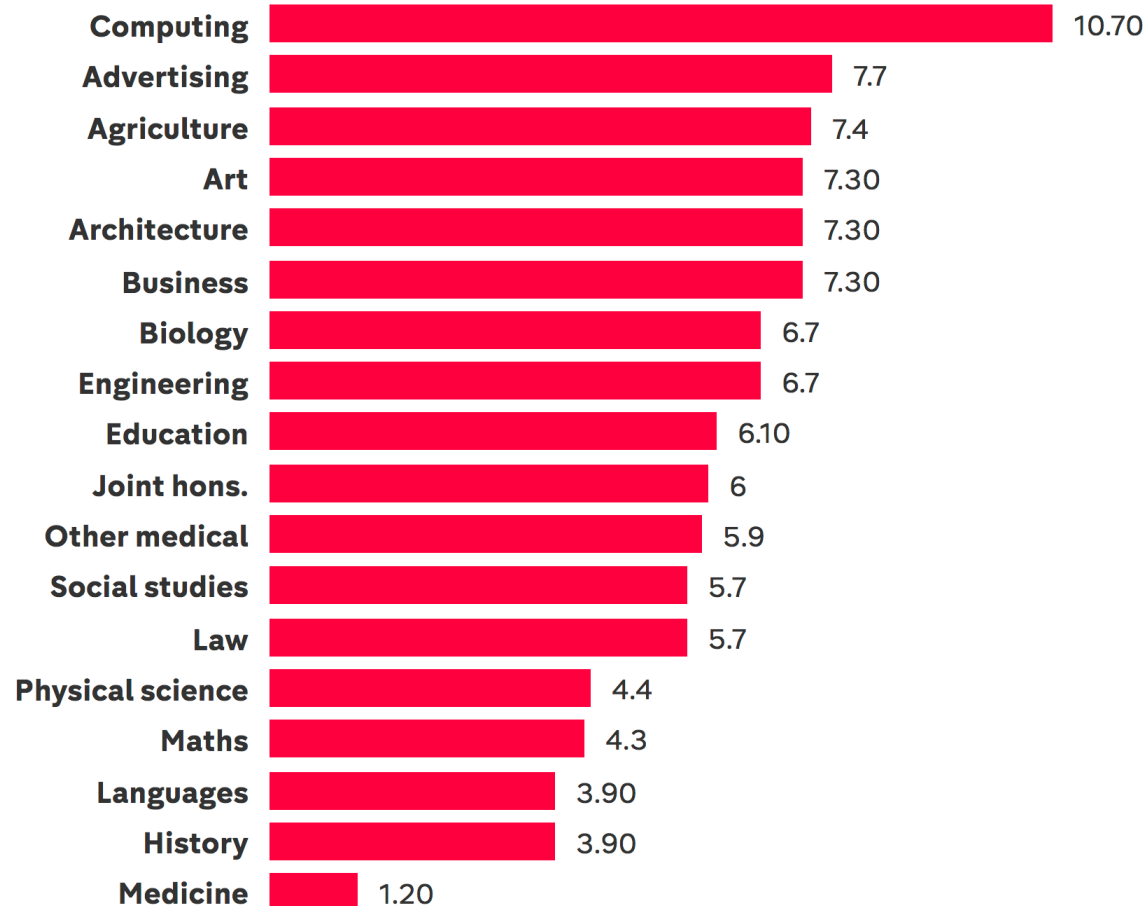
Absolutorium: 8%
Number of students:
233



Dropped-out : 64%
Number of
students: 1852

Investigation: reasons behind the phenomenon of dropping out

Percentage of first year dropouts by subject

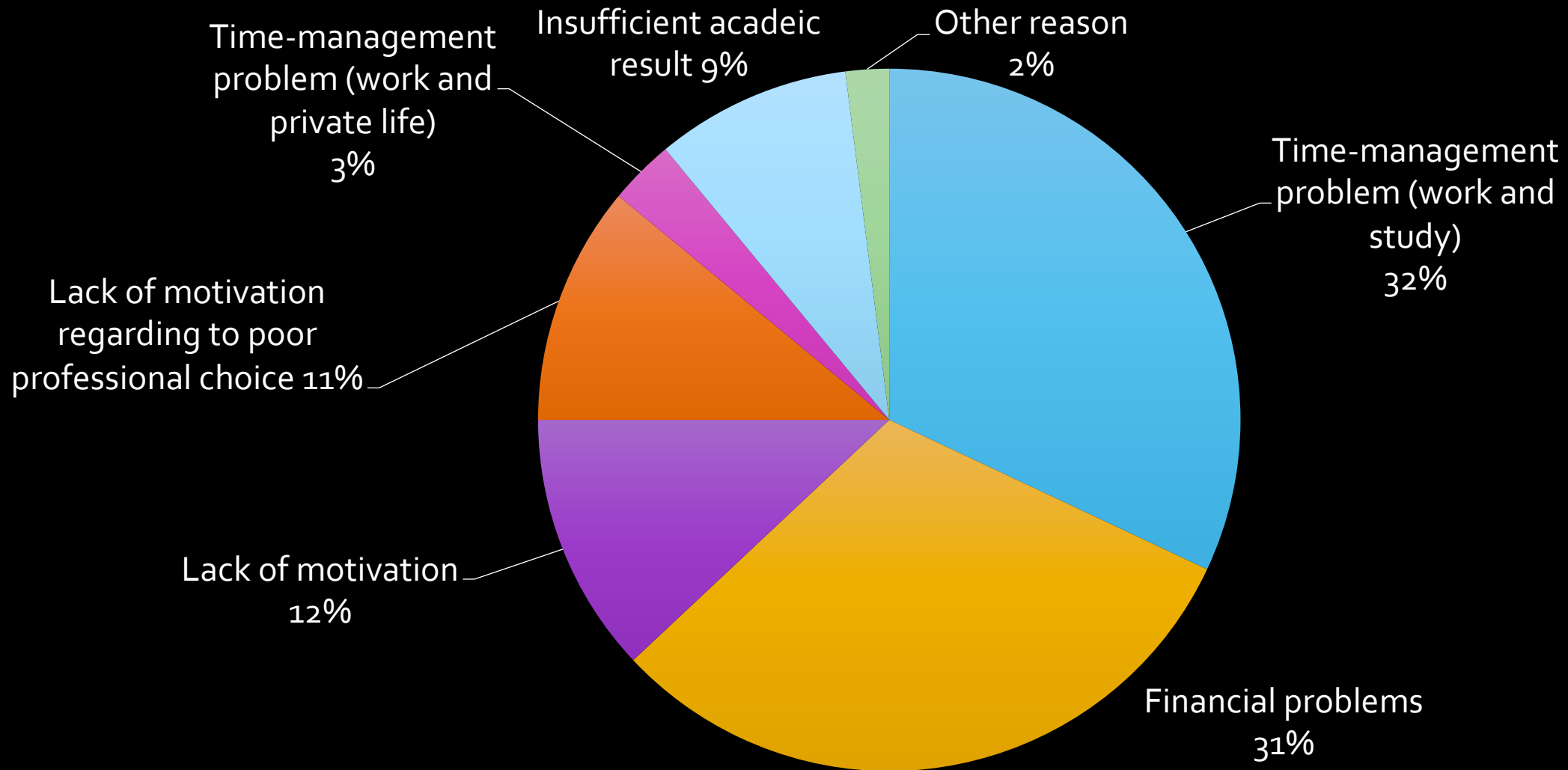


SOURCE: HIGHER EDUCATION STATISTICS AGENCY

Main reasons


- incompatibility between work and learning
- financial problems
- Motivation
- Study plan

What are the possible reasons behind drop-out?





How to Prevent Students from Dropping Out?

- Changes in
 - education
 - organization of education
 - system of student services
- 



Actions from 2006

- 2006: first year students were organized **in fixed composition groups** of 20 students in order to promote community building. We launched a buddy program where students shared their problems with their teachers and fellow students, who then helped them to cope with issues in university life.
- **A tutoring program** implemented by fellow students was started.
- 2014: the first of five **student counselling psychologists** was employed and started to offer individual life management consultancy and training to groups of students to overcome study difficulties. A **circle of peer counselors** was formed and a training program was introduced for mentors and for peer counselors.

Actions from 2016

- Advisory service: how to schedule exams and how to register for courses in the optimal way (load and dependency)
- Student attendance in all classes was made compulsory for all CS students (2018: except for students having good results, i.e. with a performance higher than 80% average grade for 30 ECTS/semester)
- “Preparation course for university studies and developing learning skills” became obligatory for all first-year students.
 - intensive training program + a special mentoring program
 - in small groups of students
 - general studying and time-management techniques, soft skills and Computer Science identity
 - special workshop about learning techniques on how to study mathematics and programming subjects efficiently.
- Individual monitoring system

PREPARATION COURSE FOR ACADEMIC STUDIES/ LEARNING METHODOLOGY

Training

- Team building
- Intercultural training
- Learning strategies, learning styles
- Time-management
- Stress management
- Motivation
- Soft skills
- Psychologist trainer led trainings
- Obligatory

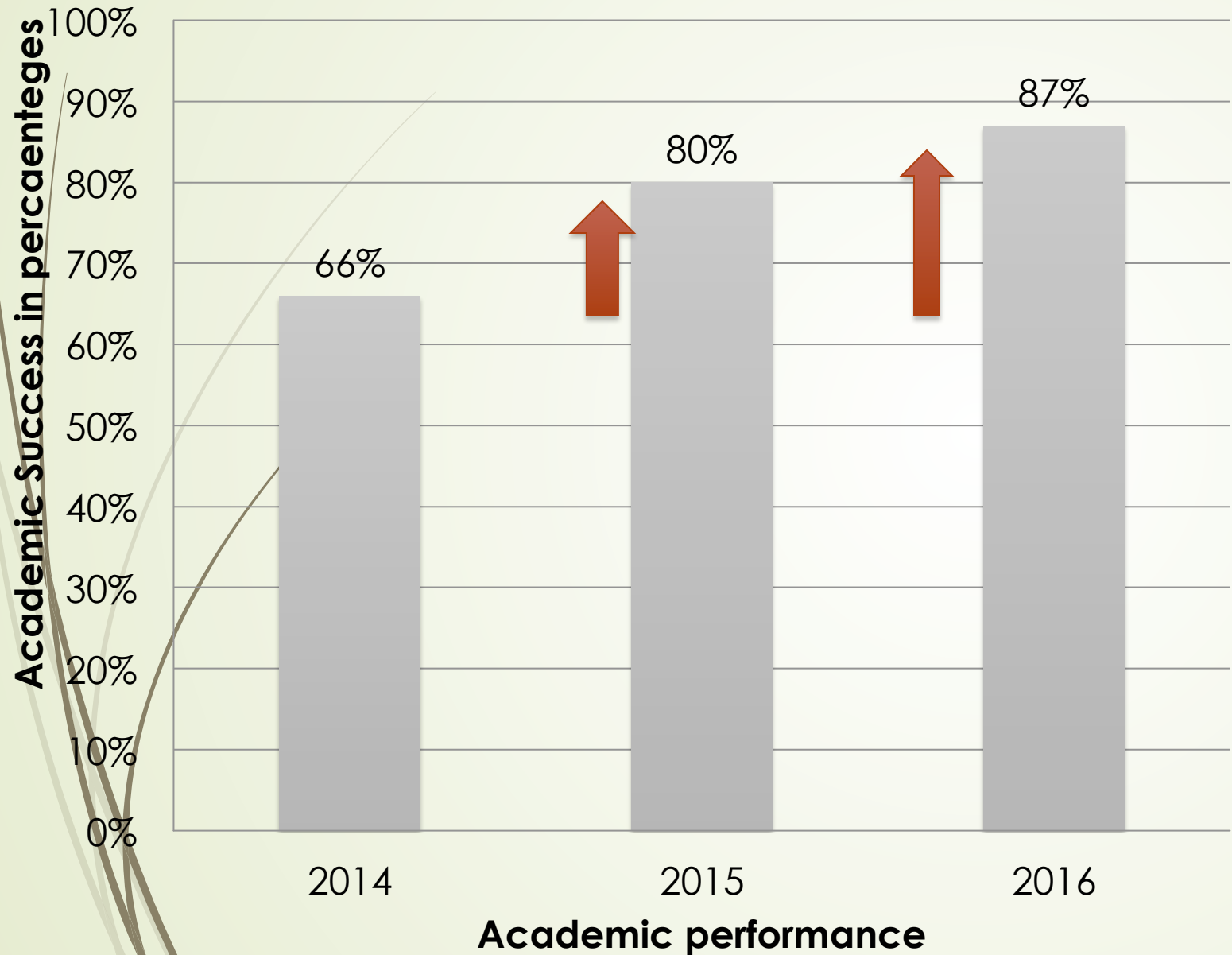
Mentor classes

- Weekly class
- Mentor teacher led classes
- Helping in integration into the academic environment
- Information transfer
- Obligatory

Questionnaire

- Obligatory
- Participation in research instead of examination
- Through NEPTUN-message at the end of the semester

Student's achivement in each year



➡ The proportion of students who have successfully completed at least 5 of the first semester's subjects (and registered for the second semeser) shows a spectacular increase between 2014 and 2016.

Subjects completed in the first semesters (students registered for the second semester)

Number of subjects /semester	2013/14/1	2014/15/1	2015/16/1	2016/17/1	2017/18/1	2018/19/1
7	53	128	198	181	216	273
6	113	63	51	83	48	69
5	64	65	47	69	35	37
4	48	48	36	24	32	19
3	21	34	16	11	12	13
2	22	23	14	7	12	8
0-1	35	17	4	7	9	3
Total	356	378	366	382	364	422

Year	Number of students admitted first time
2013	396
2014	442
2015	446
2016	426
2017	454
2018	477

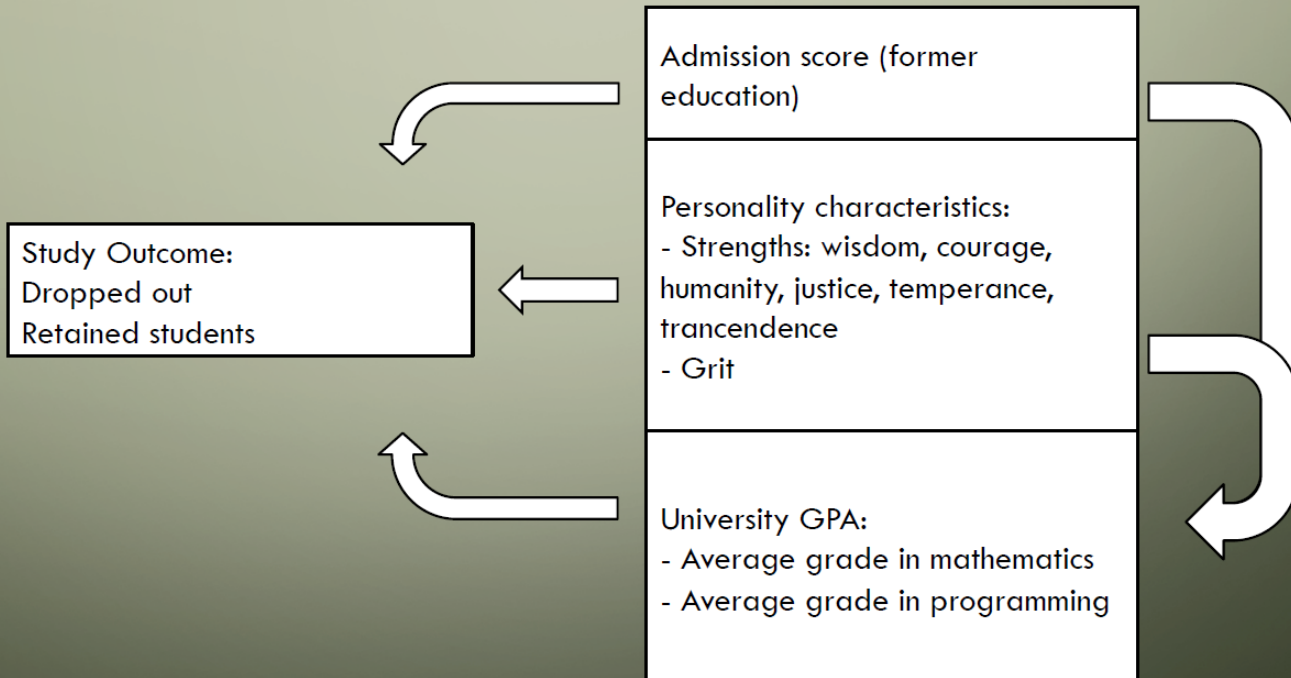


Changes in curricula

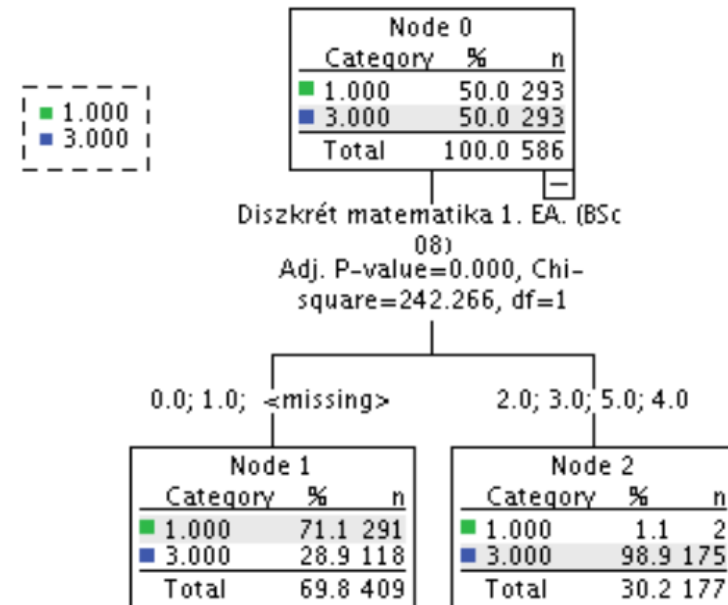
- ▶ 2018: the curricula were changed based on data science analysis (more informatics and less math in the first semester, mathematics was shifted to the second semester)
- ▶ Differentiated education according to entry level (3 subsets)
- ▶ Stronger relationship between theory and practical knowledge
 - ▶ number of students who successfully completed 5 of the 7 obligatory courses of the first semester and registered for the second one increased significantly **from 66% in 2014 to 90% in 2018.**
 - ▶ the number of active students (with the same annual intake) has increased by 25% in the past few years

Survey characteristics and analysis

Online survey,
800 students



Decision tree-
based model
Definition of
critical subjects



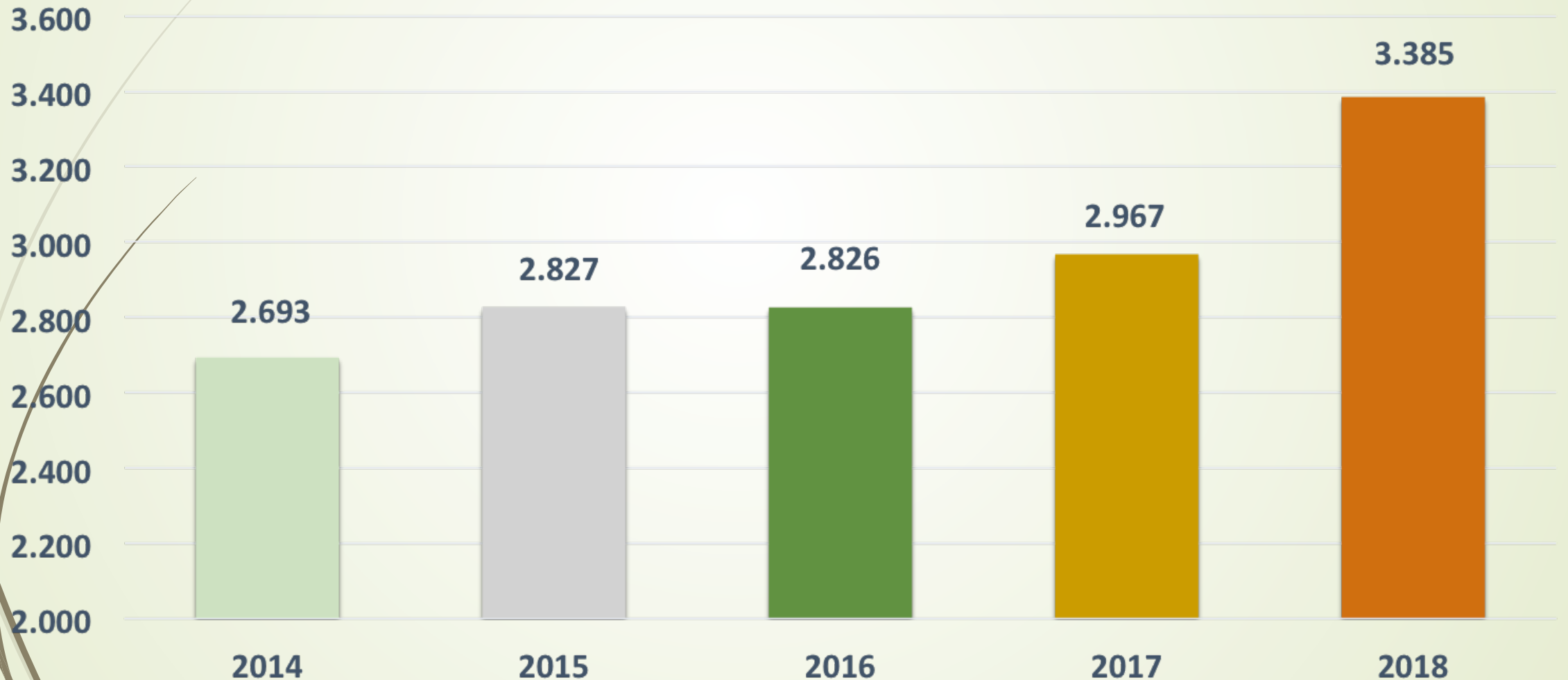
Subjects completed by the second semester

Number of subjects/ semester

	2014/15/2	2015/16/2	2016/17/2	2018/19/2	
10	35	30	38	180	
9	15	22	8	44	
8	46	74	63	36	
7	27	40	32	27	
6	18	24	25	19	
5	20	11	13	11	
4	27	35	22	24	
0-3	185	116	158	72	
Total	352	352	359	413	

Evolution of average grades

The evolution of the number of students reached the 4.0 credit index in the last 3 semesters: 120, 160, 320





Thank you for your attention!
hz@inf.elte.hu