Several Female Support Activities Later – What have we learned?

Gerti Kappel

Laura Kovács
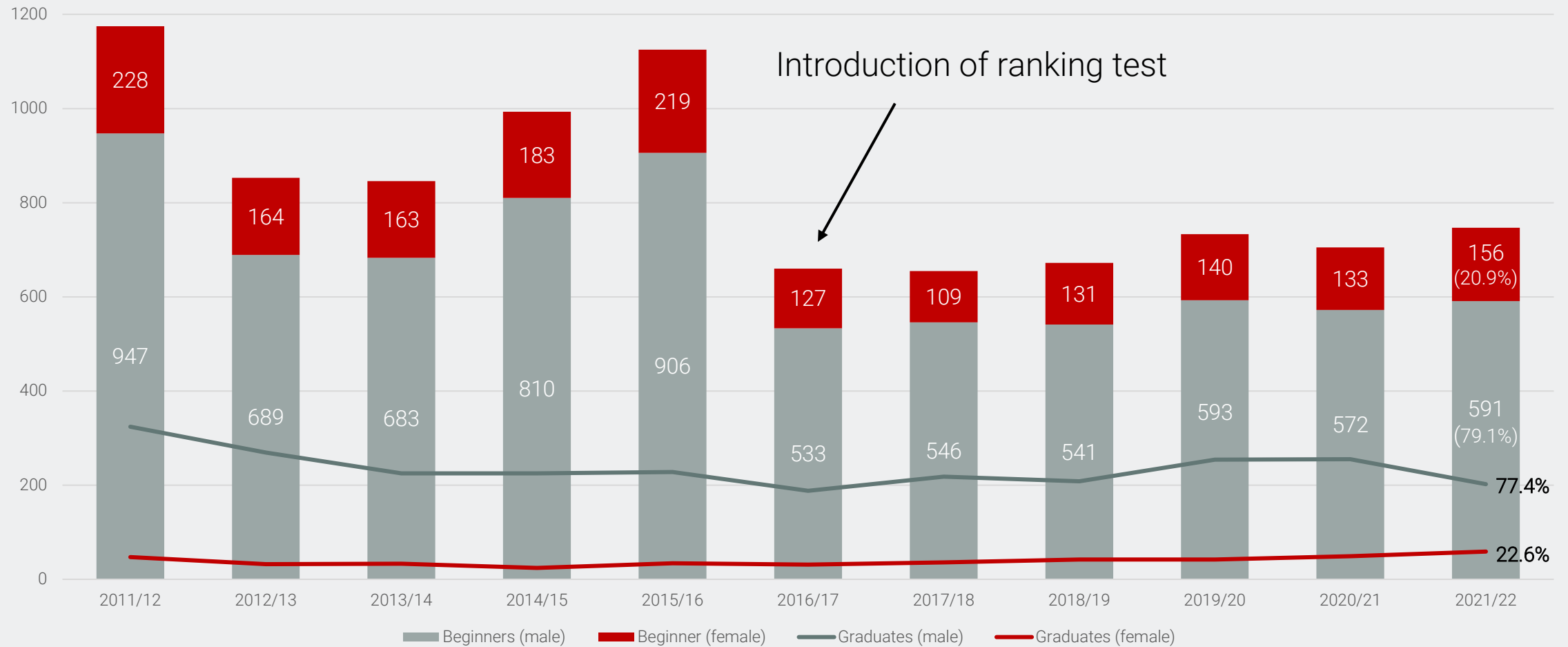
Faculty of Informatics
TU Wien

TU WIEN Informatics

The winner is …

- TU Wien Informatics Receives Europe-wide Minerva Informatics Equality Award 2022
- [The Minerva Informatics Equality Award](), organized by Informatics Europe and sponsored by Google, recognizes best practices in Departments or Faculties of European Universities and Research Labs that encourage and support women's careers in Informatics research and education.
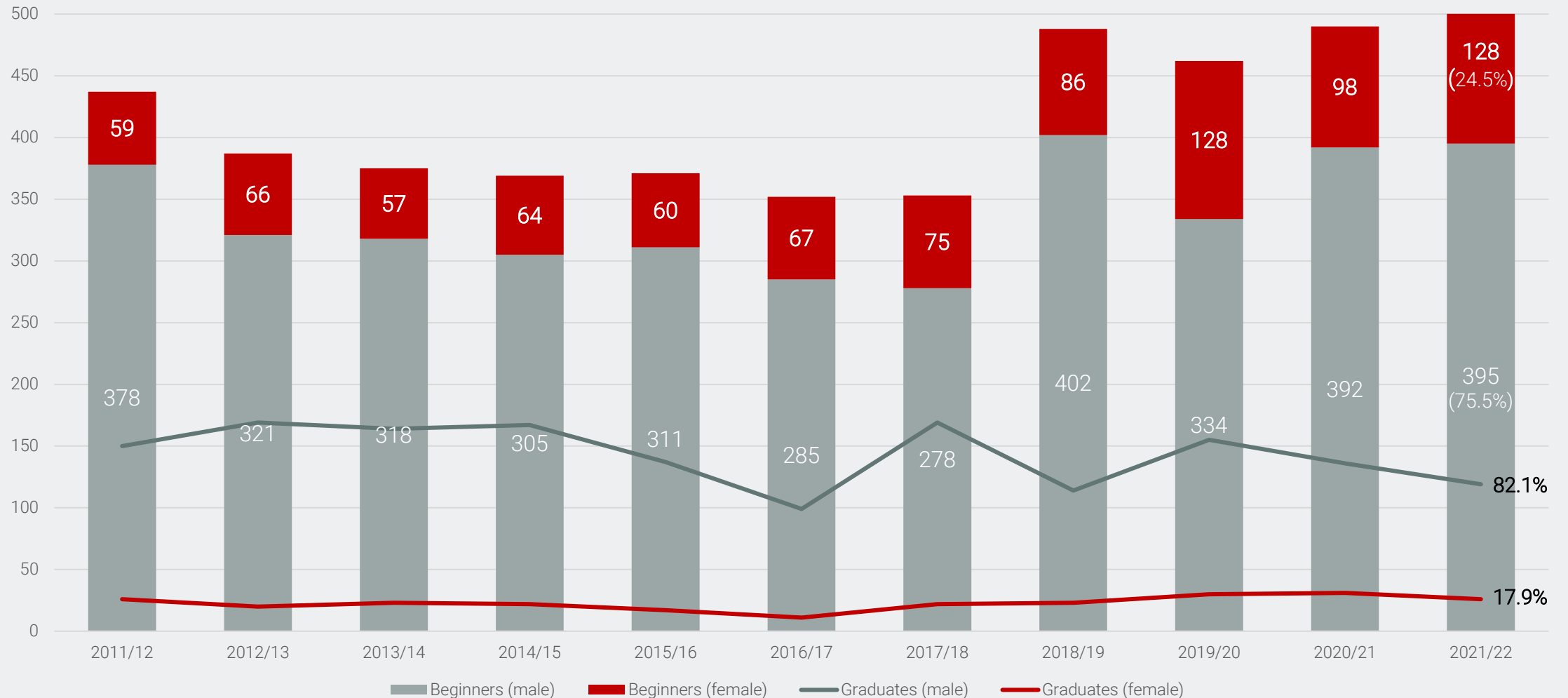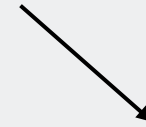
- https://informatics.tuwien.ac.at/news/2307
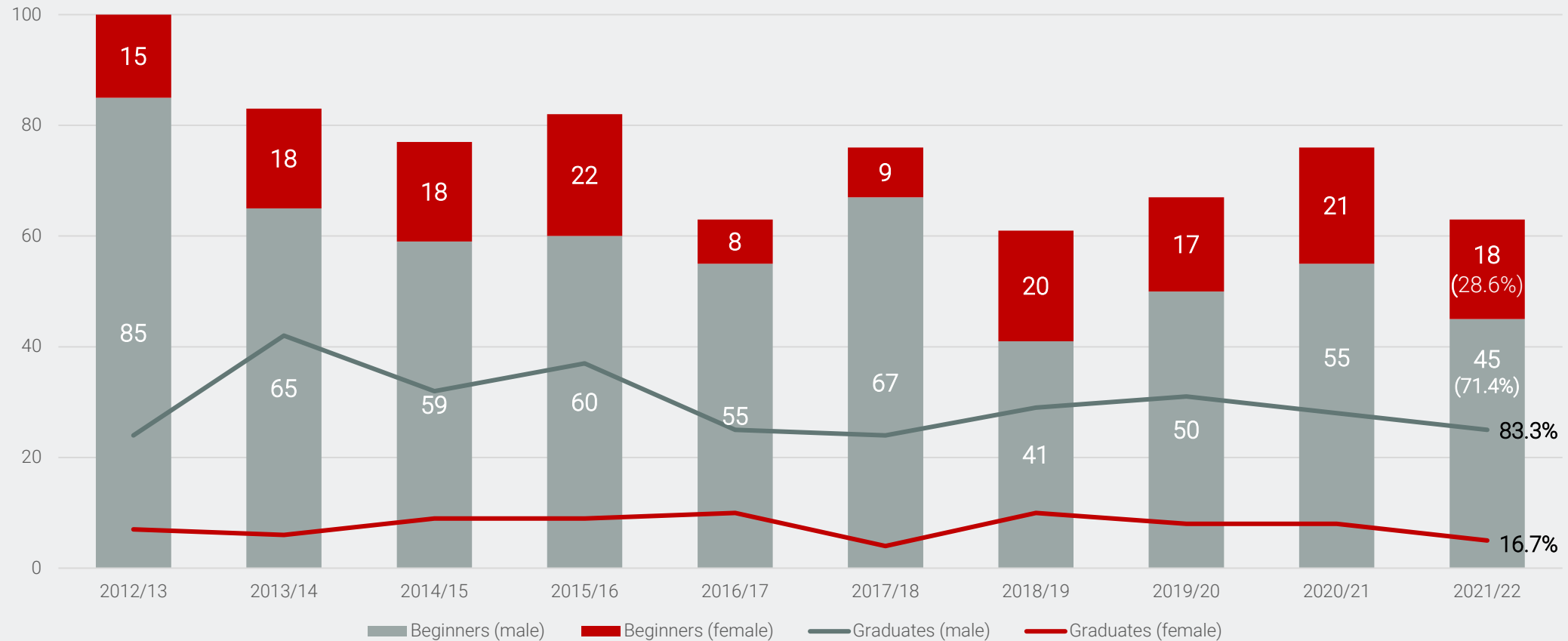

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Some Statistics – Bachelors

Introduction of ranking test

Legend: Beginners (male) · Beginner (female) · Graduates (male) · Graduates (female)

Year	Beginners (male)	Beginner (female)
2011/12	947	228
2012/13	689	164
2013/14	683	163
2014/15	810	183
2015/16	906	219
2016/17	533	127
2017/18	546	109
2018/19	541	131
2019/20	593	140
2020/21	572	133
2021/22	591 (79.1%)	156 (20.9%)

77.4%

22.6%

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3

Some Statistics – Masters

Some Statistics – Doctoral Students

Beginners (male), Beginners (female), Graduates (male), Graduates (female)

Year	Beginners (male)	Beginners (female)
2012/13	85	15
2013/14	65	18
2014/15	59	18
2015/16	60	22
2016/17	55	8
2017/18	67	9
2018/19	41	20
2019/20	50	17
2020/21	55	21
2021/22	45 (71.4%)	18 (28.6%)

Graduates (male) line ends at 83.3%; Graduates (female) line ends at 16.7%.

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Some more Statistics @ Professor Level (as of March 1 2023)

- 8 women *out of* 32 Full Professors (25%)

- 5 women *out of* 30 Associate Professors (16,7%)

- 7 women *out of* 13 Assistant Professors (53,8% ☺)
  - ✓ + 2 via excellence program from rectorate in 2024
  - ✓ + 2 via excellence program from rectorate in 2025
  - ✓ + 1 via decision of the dean in 2025

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What happend so far at TUW and Informatics level (selected list)

- Women's Postgraduate College for Internet Technologies (WIT, 2003-2007), Faculty of Informatics, www.wit.at
  - WIT 2, 4 Faculties of TU Wien (2008-2011)
  - FIT Days („Frauen in die Technik", since 1999)
  - IT sommer workshops for female pupils (since 2005)
  - BLUE&MINT mentoring, Cooperation IBM / TU Wien (since 2012)
  - Post-doc positions for female scientists
  - Online mentoring for female students (beginners)
  - Mentoring for female Master/PhD/Post-doc students

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Current female support activities (selected list)

- Attract – Retain – Promote – Sensitize

Attract

- FIT Days („Frauen in die Technik", since 1999)

- IT/Coding Summer Camp for Girls (GirlsCodeTUgether, since 2022)

- MOOC „Programing with Processing" (since 2017)

- Entry exam (ranking test) without m/f discrimination (since 2016)

- Interface with Schools – eduLAB
  - Workshops and permanent exhibition „Abenteuer Informatik" (since 2019)

- Bridging course „Introduction to Programming with Processing" (since 2015)
  - for female (and male) students
  - learn and network

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Summer camp
GirlsCodeTUgether

- 5-day programming summer camp for seven girls (1
- Focus on programming with unplugged activities in
- Content
  - Programming of games with
    Scratch & Processing
  - Experiments with Sphero BOLT &
    LEGO MINDSTORMS & Boston Dynamics
  - Unplugged: Coding and AI
- First implementation July 2022
- Yearly implementation under
  (strong) consideration
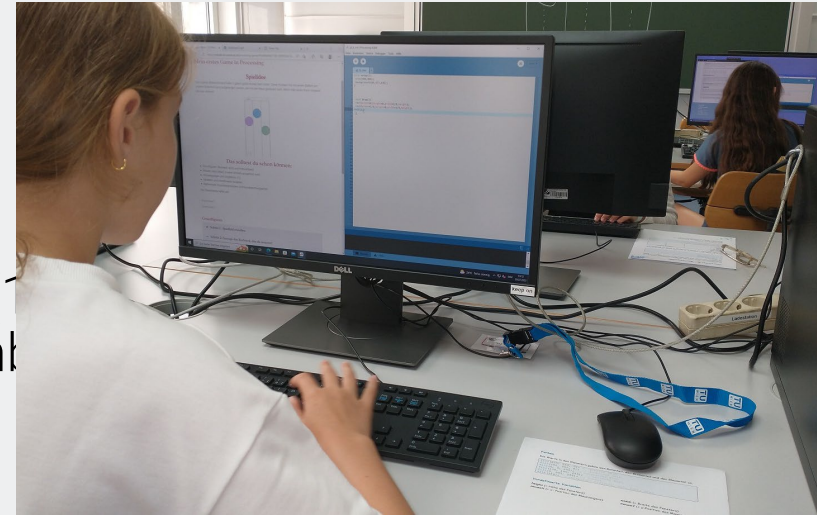
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MOOC „Programing with Processing" –
Video production already 2017 ☺
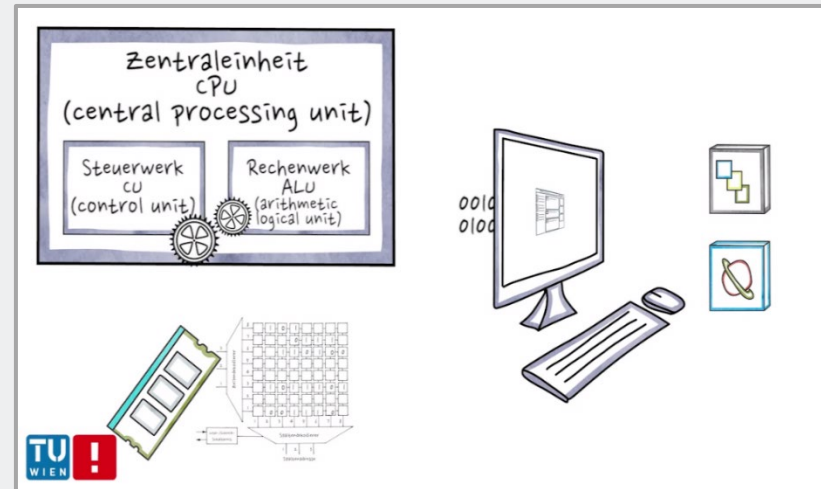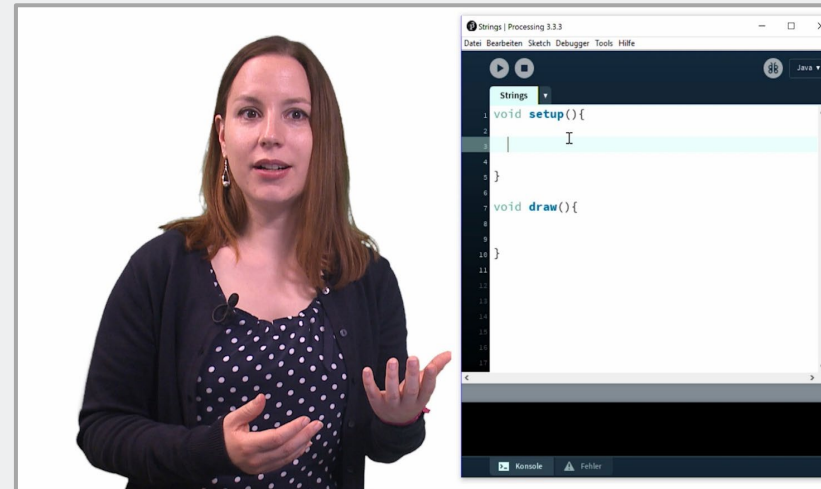
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"Abenteuer Informatik" Exhibition

Motivation and Aim

- Create enthusiasm among pupils for Informatics
- Provide incentives for Informatics education at schools
- Strengthen the interface between TU Wien and schools

Facts

- Imparts ways of thinking in Informatics illustrated with typical problems
- 10 topics consisting of 4-5 panels (80cm x 200cm) each
- Various interactive experiments with tangible artifacts
- Implemented as a **permanent exhibition**
- Workshops for school classes from 5th to 13th grade (some workshops also with primary schools)
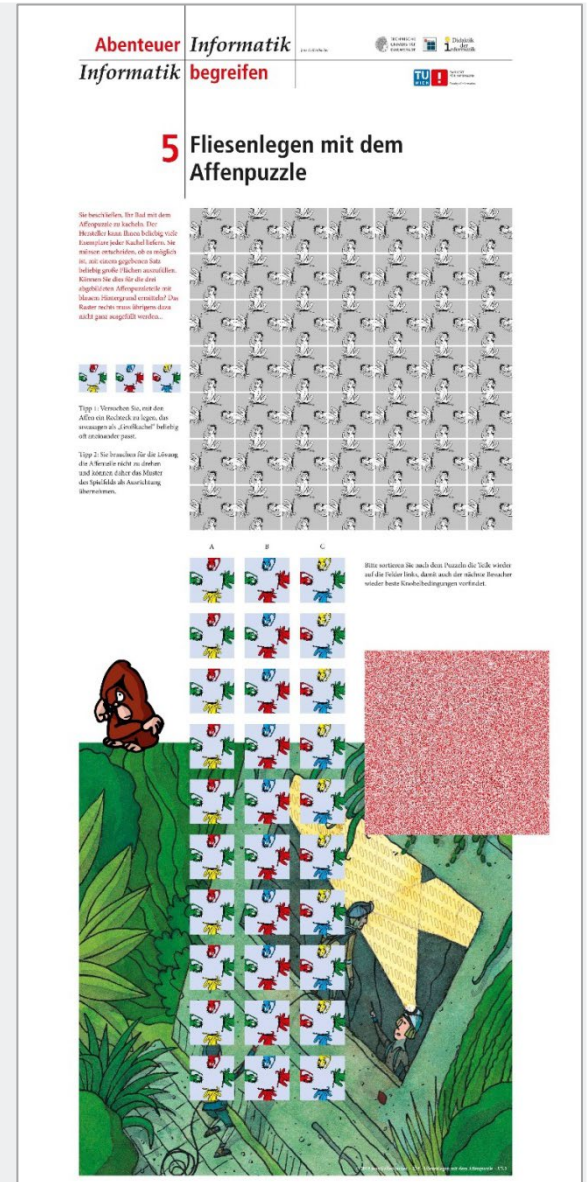
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"Abenteuer Informatik" Workshops

- **social responsibility**
  - involve socially disadvantaged people
  - involve female students
  - close gap between school and university
  - involve a large amount of students in informatics activities

- **realistic view on informatics**
  - propagate thinking informatically
  - comprehend informatics as a science that shapes the world
  - show the broadness of informatics
 - propagate a scientific style of informatics education

- **impulses for teachers**
  - develop new learning materials
  - propagate discovery learning
  - propagate group learning
  - involve more teachers in informatics activities

- **impulses for students**
  - arouse interest to study at a university
  - motivate to be deeper interested in informatics
  - provide fun and enjoyment with informatics

Workshops – Pupils Attendance 2019S-2023S

Workshops@TUW & Workshops@Schools
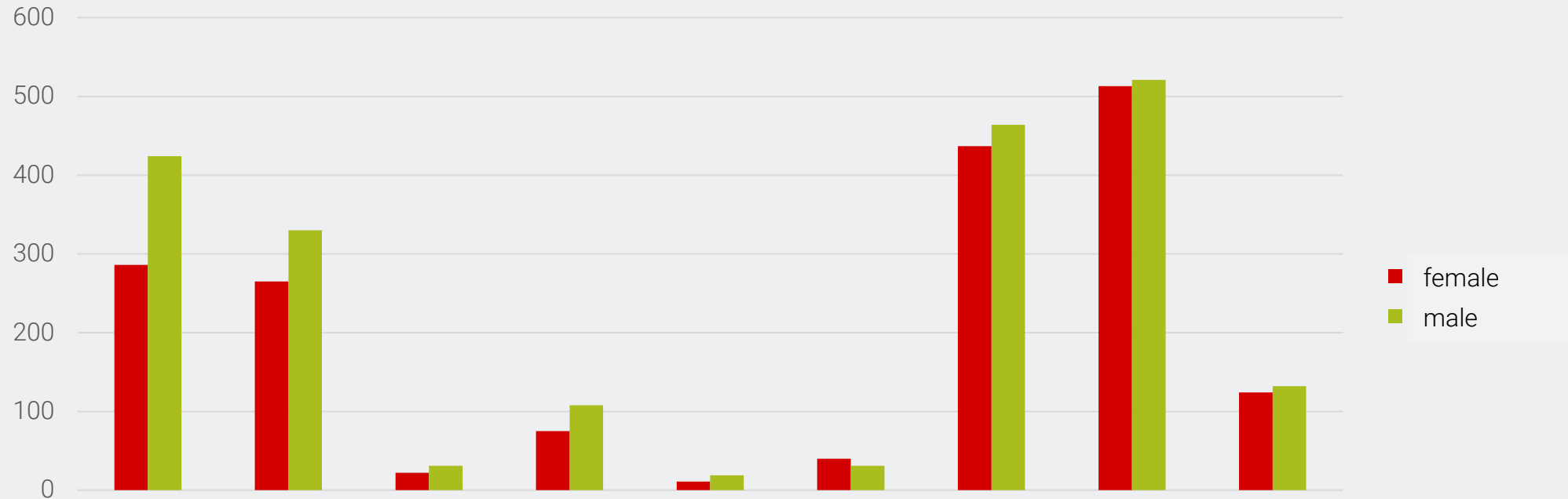
	2019S	2019W	2020S	2020W	2021S	2021W	2022S	2022W	2023S (March)	Total
female	286	265	22	75	11	40	437	513	124	1773
male	424	330	31	108	19	31	464	521	132	2060
total	710	595	53	183	30	71	901	1034	256	3833

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Bridging course „Intro to Programming with Processing"

- Two courses 185A86 and 185A82 (male/female)
- WS 2016 − WS 2019

- Effects on first study year
- Effects on whole study life cycle   } see next two slides

with / without bridging course	WS2016	WS2017	WS2018	WS2019
female	38 / 74	40 / 53	34 / 80	44 / 83
male	17 / 466	37 / 456	45 / 438	52 / 480

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Bridging course „Intro to Programming with Processing"
ECTS performance of first study year

ECTS-Leistung im jeweils 1.StudienJahr von - 2016/2017,2017/2018,2018/2019,2019/2020
für Beginner des Bachelorstudiums Informatik und Wirtschaftsinformatik
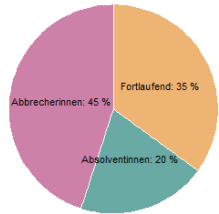nach Geschlecht und Brückenkursen 185A86 und 185A82

Brückenkurs N = 307 kein Brückenkurs N = 2130

Bearbeiter: FL Datenquelle: DWH Datenstand: 2022-09-20 Ticketnummer: PZESLSVC-107
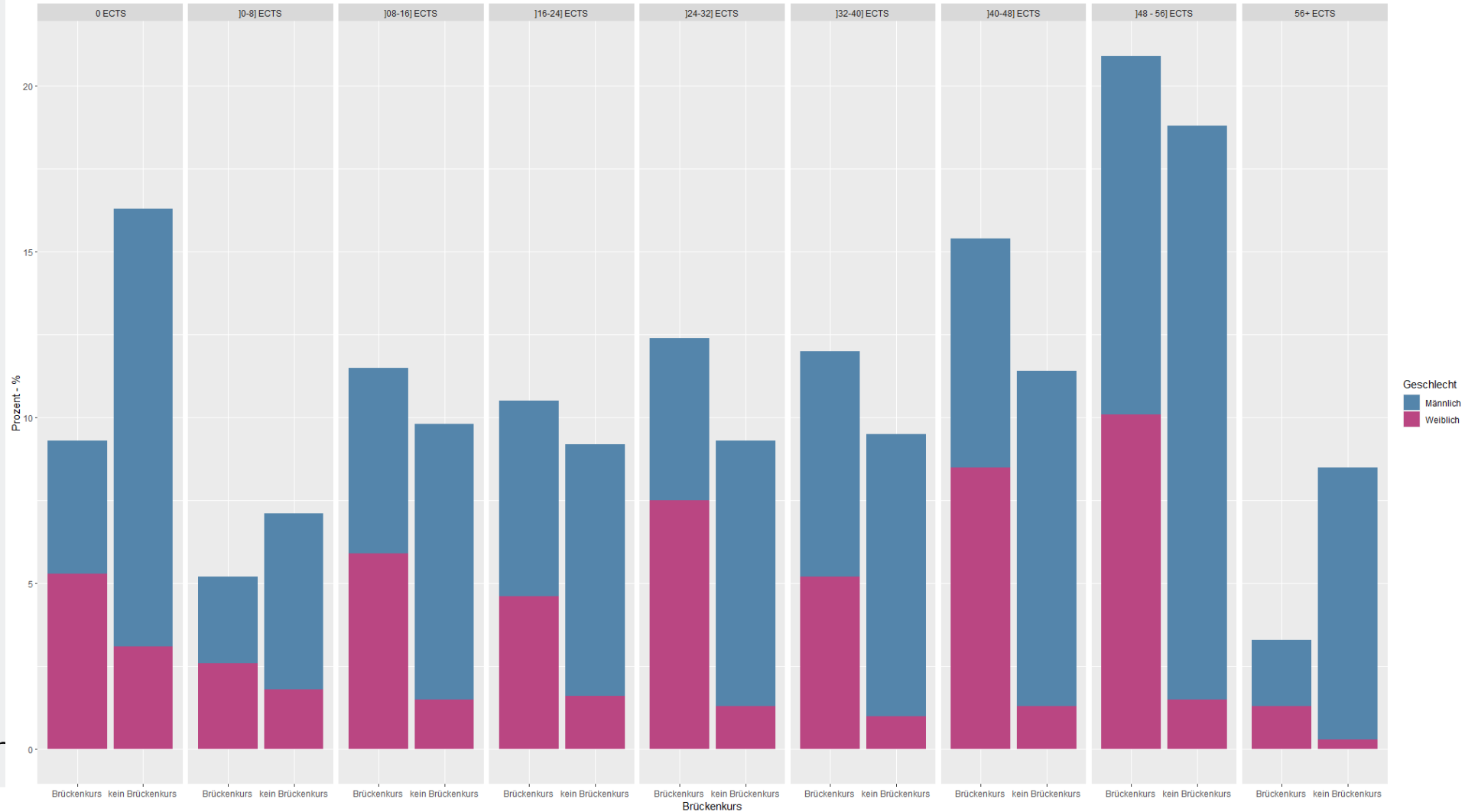
Bridging course – study progress based on cohorts

Verlauf der Bachelorbeginner nach Beginnjahren und Brückenkurs - Weiblich
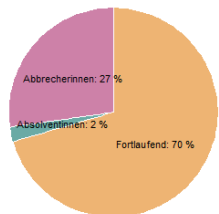
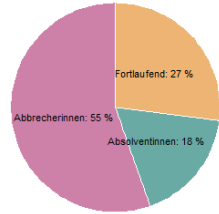Mit Brückenkurs 2016/2017 - 38 | Ohne Brückenkurs 2016/2017 - 74
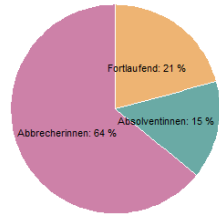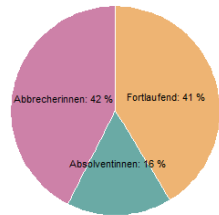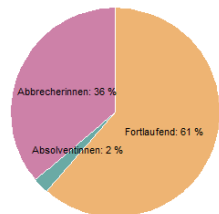Mit Brückenkurs 2017/2018 - 40 | Ohne Brückenkurs 2017/2018 - 53
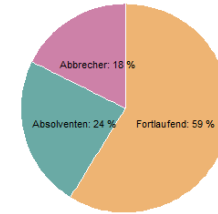Mit Brückenkurs 2018/2019 - 34 | Ohne Brückenkurs 2018/2019 - 80
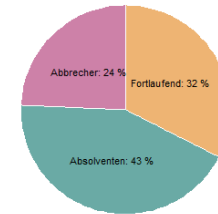Mit Brückenkurs 2019/2020 - 44 | Ohne Brückenkurs 2019/2020 - 83
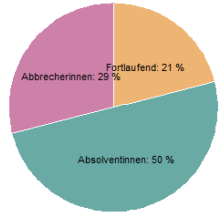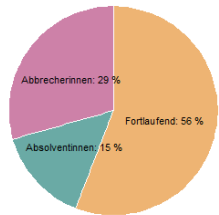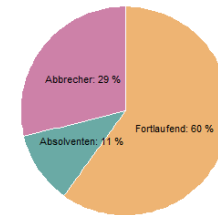
Verlauf der Bachelorbeginner nach Beginnjahren und Brückenkurs - Männlich

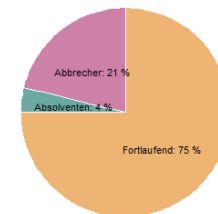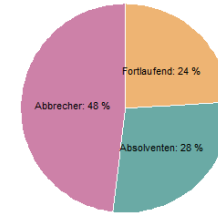Mit Brückenkurs 2016/2017 - 17 | Ohne Brückenkurs 2016/2017 - 466
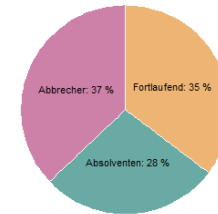Mit Brückenkurs 2017/2018 - 37 | Ohne Brückenkurs 2017/2018 - 456
Mit Brückenkurs 2018/2019 - 45 | Ohne Brückenkurs 2018/2019 - 438
Mit Brückenkurs 2019/2020 - 52 | Ohne Brückenkurs 2019/2020 - 480
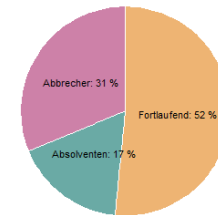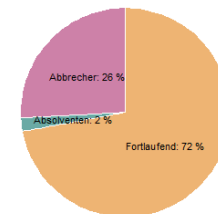
Current female support activities (selected list)

- Paid female master students
  - financially supported via dean's budget
  - 6 positions 2016 – 2019 (then came Corona, we're reviving it)

- "Visit a scientific conference" for female master students
  - 35 scholarships in 2016 – 2019 (then came Corona, we're reviving it)

- Excellence scholarships for female bachelor / master students
  - financially supported by SIEMENS AG Austria
  - up to 10 scholarships per year

- Gender quota in doctoral colleges (since 2008) + gender sensible recruitment
  - TUW, Austrian Science Fund

Retain

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Current female support activities (selected list)

- "Talk at scientific conferences" for female PhD students
  - 38 scholarships in 2016 – 2019 (then came Corona, we're reviving it)

Promote

- Post-doc positions for female scientists (since 2008)
  - 8 so far
  - 3 out of these 8 are full professors at the faculty right now

- Assistant Professorships (Tenure Track) in CS for female scientists
  - 1 filled 2018 (out of 55 highly competitive applications)
  - 2 filled 2021 (out of 41 highly competitive applications)

- (female) Excellence program of the rectorate of TU Wien (since 2012)

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Current female support activities (selected list)

Sensitize

- Attend Gender Awareness Workshops at TU Wien
    - 28 so far (winter term 2016 + summer term 2017)
    - willingness of colleagues is limited ☹

- Foster female guest professorships
    - 13 so far (out of 86; 15,12% ☹)

- Gender competence as desired competence for professor positions
    - part of official hiring procedure of TU Wien since Oct 2021

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Side step 1 - ... the issue with the name*)

180 women and 180 men were asked to review a mathematics paper and rate it from 1 (very good) to 5 (very poor).

	author		
	John T. McKay	Joan T. McKay	J. T. McKay
Men	1.9	3.0	2.7
Women	2.3	3.0	2.6

M. A. Paludi and W. D. Bauer, "Goldberg Revisited: What's in an Author's Name", Sex Roles: A Journal of Research, 9 (1983) pp. 387-390.

P. Goldberg, "Are Women Prejudiced Against Women?" Trans-Action 5 (1968), pp. 28-30.

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*) this slide is courtesy of Dr. Brigitte Ratzer, TU Wien

Side step 2 - ... different ratings for women*)
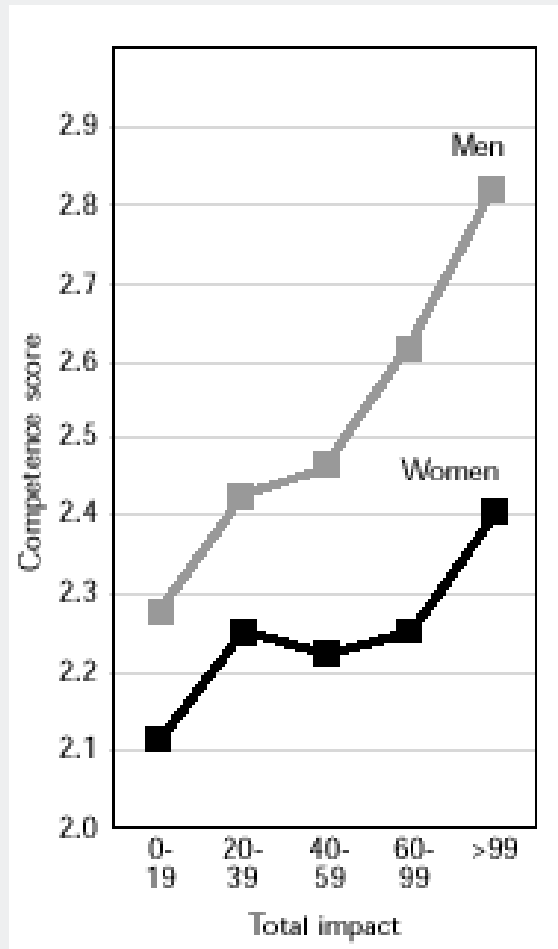
Total impact = Addition of the impact factors of all published journal articles

Competence score: impact factors
- Scientific productivity
- Gender
- Acquaintance with jury members

Christine Wennerås & Agnes Wold, « Nepotism and Sexism in Peer Review », Nature 387, 341 (1997)

Side step 3 - ... what biases do you have?*)

https://implicit.harvard.edu/implicit/takeatest.html

What we have learned...

- Our competitor
  - Conservative society (home, school, culture)

- Mindset
  - Women are not in need of support but worthy of support

- Female students have to learn to accept support activities
  - Opinion poll (summer 2015) among female BI/CS students: only 27% are in favour of female support activities

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What we have learned ...

- Learn from best practice examples
    - CMU (Lenore Blum)
    - Harvey Mudd College (Maria Klawe)
    - University of Edinburgh (Jane Hillston)
    - University of Bamberg (Ute Schmid)
    - ...

- Curricula in universities have to be adapted

- Appropriate curricula in schools are necessary
    - Teach the teacher

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What we have learned...

- Role Models
  - Necessary at all career levels
  - AcademiaNet - http://www.academia-net.de

- Worthy of support
  - Dean's List, especially for female students
  - Award for attending Grace Hopper Conference (not yet realized)

- Sustainability, sustainability, sustainability, …
  - not only CO_2 reduction but female empowerment ☺

- Resources necessary (money, human resources)

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Instruments @ TU Wien

- Vice Rector for Human Resources and Gender
- Office for Gender Competence
  - At Vice Rector level
- Committee on equal opportunities
- Faculties @ TU Wien (have to) implement female support activities (gradually)

- Most importantly - **Kindergarten @ TU Wien !!!**
  - Christiane Nüsslein-Volhard,
    Nobel prize 1995 in Physiology or Medicine,
    Foundation for the promotion of female scientists with children !

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COST Action 19122 EUGAIN – Mapping to WGs

MC members: Gerti Kappel, Laura Kovács

WG1 - From High-School to Informatics
- „Abenteuer Informatik" Workshops for Schools
- Digital Girls Hackathon at Vienna Digital Days 2021
- Girls Coding Summer Camps
- Bridging Course „Intro to Programming"

WG2 - From Undergraduate Studies to PhD
- Master stipends for conference attendances
- Best master thesis awards (e.g. Dr. Maria Schaumayer prize)
- SIEMENS excellence scholarships for female students

WG3 - From PHD to Professors
- dedicated female tenure-track positions since 2018
- 2 Netidee female fellowships for innovative PhD research
- 2 TU Wien Women Awards 2020+2022

WG4 – Cooperation with Industry and Society
- Consolidating the Digital Humanism Initiative
- TUforMath Lectures Series
- SCIENCE Lecture Series of the Vienna Universities and the City of Vienna

WG5 – Strategy & Dissemination
- EU Marie Skłodowska-Curie COFUND Doctoral programme LogiCS@TU Wien
- Special Research Program SpyCoDe of the Austrian Science Fund
- TU Wien Doctoral College SecInt

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