

Factsheet No. 1/2012

Why Do Matura Graduates (Not) Opt for Studies at ETH Zurich?

Recommendations on How to Increase the Proportion of Female Students

Background: ETH Zurich Does Not Fully Exploit Its Potential in Terms of Female Matura Graduates Interested in MINT Areas

ETH Zurich does not fully exploit its potential in terms of women who are interested in the MINT areas (mathematics, IT, natural sciences, technology). While 42% of Matura graduates who hold a degree with a concentration on a MINT area subject are women, the proportion of female students at ETH Zurich has remained unchanged at a mere 30% since 2003.

In addition, the comparison between the Swiss universities and ETH Zurich reveals considerable differences: In subjects offered by both ETH Zurich and the universities, the proportion of female students at universities is 45% while that at ETH is 35% (excluding engineering programs).

Women Interested in MINT Subjects Prefer Universities over ETH

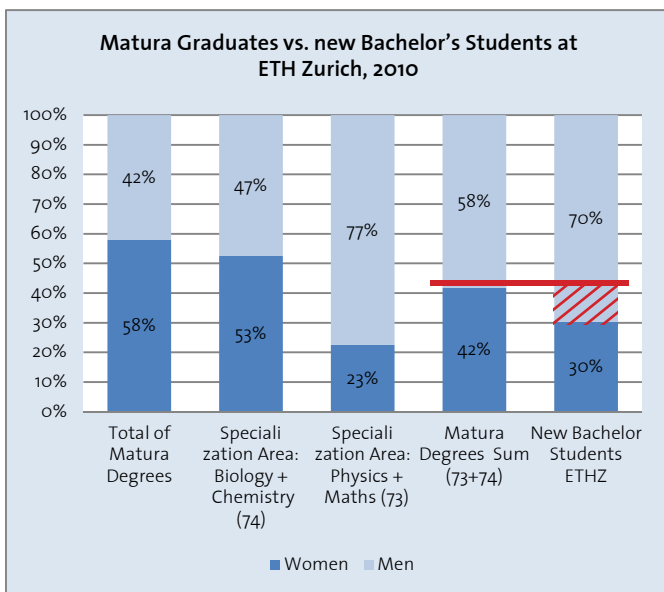


Figure 1: ETH Zurich does not fully exploit its potential in terms of female Matura graduates interested in MINT areas. (Sources: Federal Statistical Office (BfS), 2011: Maturitäten und Übertritte an Hochschulen 2010, as well as Division of Finance and Controlling at ETH Zurich).

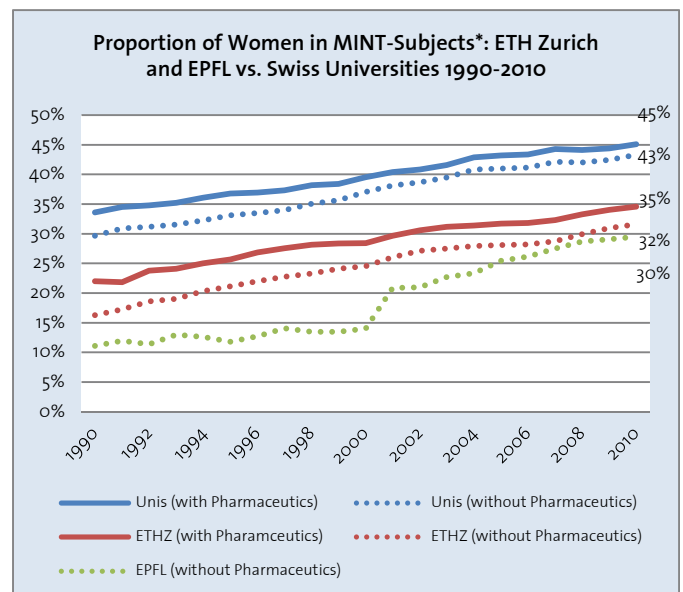


Figure 2: * The comparison only considers the areas of exact sciences, natural sciences and pharmaceuticals, i.e. subjects offered both by universities and by ETH Zurich. In order to allow comparison with EPFL, where no pharmaceuticals programs are offered, the proportions of women at universities and ETH Zurich are additionally shown without taking the area of pharmaceuticals into account. (Source: Federal Statistical Office (BfS), 2011: University students by gender, area and institution, 1980–2010).

Survey of Matura Graduates

From January to April 2011, Equal! carried out a survey among 623 Matura graduates from five schools in German-speaking Switzerland and one in the Principality of Liechtenstein (Academia Engiadina, Kantonsschule Oerlikon, Kantonsschule Zug and Kantonsschule Wattwil, Theresianum Ingenbohl, Liechtensteinisches Gymnasium in Vaduz). All schools, except for Kantonsschule Oerlikon, had participated in the “ETH unterwegs” program. The data collected

is not representative; however, it may indicate some relevant patterns and tendencies. The four page questionnaire comprised three main topics: the choice of the studies, the choice of university, and the perception of ETH Zurich. In July 2011, additional interviews as well as a written follow-up survey focusing on the perception of ETH Zurich were carried out with 77 participants.

Summary of the Most Important Results

- > The number of men choosing applied mathematics or physics as their Matura profile is significantly higher than that of women
- > Young women interested in mathematics and physics mostly opt for studies in the areas of natural sciences or technology at ETH Zurich.
- > Women with a Matura profile focusing on biology or chemistry often choose to study medicine or biology at a university.
- > Women are often undecided whether they want to study a MINT subject or not. Women opting for a MINT subject have difficulties deciding on whether they want to study at a university or at ETH.
- > Studies at ETH Zurich are considered to be challenging, high-quality, and difficult. The perception that ETH students tend to be “nerds” is shared by women and men.

Results

One of the most important results of our survey is that a student’s interest in MINT subjects is sustainably shaped when they are still in school and, later on, is reflected in their choice of studies. The majority of women with a Matura profile concentrating on applied mathematics and physics decide to study in a MINT area at ETH Zurich. Their interest in engineering, mathematics, physics or IT is even stronger than that of their male colleagues. However, the fact that even at Matura level significantly more men than women choose the applied mathematics or physics Matura profiles leads to a shortage of young female students in these areas. Women who choose biology or chemistry at Matura level are mainly interested in studying medicine or biology. The majority of those interested in biology, however, opt for studies at a university and not ETH. Only slightly less than a fifth of female students with this Matura profile stated that they intended to study at ETH – in contrast to their male colleagues of whom 50% indicated ETH as their preferred place for studying.

The proportion of women who, at the time of the survey, had

not made up their minds about studying a MINT subject or not was considerably higher than that of men. In addition, many of the women who were interested in a MINT subject (excluding medicine) or had already decided that they wanted to study such a subject were undecided regarding the institution (university or ETH), while this was generally not true for men.

Our survey has shown that female and male Matura graduates have a similar perception of ETH. Studies at ETH Zurich are considered to be challenging, high-quality, and difficult. Also, the view that ETH students tend to be “nerds” is shared by women and men. Apparently, this perception, however, causes different reactions in women and men. Usually, women – except for those who already focused on mathematics or physics – feel rather discouraged by this. In addition, women usually clearly underestimate their own capabilities to study a MINT subject, even if their Matura results in mathematics and physics are comparable to those of men. This self-assessment is often what keeps them from studying at ETH – which, supposedly, is difficult.

Recommendations

If ETH Zurich wants to attract more women to study a MINT subject, the interest of children and adolescents in these topics needs to be raised. For this purpose, several existing structures and projects could be used, e.g. in the area of the promotion of MINT talents at schools or the ETH4Kids project. Such activities should be further developed. The focus of the study programs should be designed more attractively. Pilot projects in Switzerland and the US have shown that if the fields of interest of women are taken into account in MINT study programs and this is clearly communicated, a larger number of women can be attracted.

New professorships should, therefore, focus on contents women find interesting. Additionally, the proportion of interdisciplinary and transdisciplinary activities should be increased in order to satisfy the broad range of interests of

women. In this context, the Health Sciences and Technology Department (D-HEST) should be considered for pilot projects.

In order to meet the particular information requirements by female Matura graduates when choosing their fields of studies and the institution they want to study at, ETH should check if the material offered as part of the study information days could be used more extensively. The Scientifica fair would be ideal for this purpose. Furthermore, ETH should ensure that its information material is attractive not only to young men but ALSO to young women and that more information on job profiles is available. In the individual departments, this could be addressed within the scope of the 2012–2014 web re-launch. ETH Zurich should generally focus its information strategy more on future students.

Summary of the Most Important Recommendations

- > After the launch of ETH4Kids in 2011, this important instrument for the recruitment of future students should now be further developed. And so should the MINT Learning Center for teachers.
- > The contents of the courses offered should be realigned.
- > The information material on studies and job profiles should be improved.
- > ETH should focus on interdisciplinary and transdisciplinary elements of its study programs. The Health Sciences and Technology Department (D-HEST) should be considered for pilot projects.
- > ETH should “use” its students as ambassadors.

References

Equal! (2012): Maturand/innen-Befragung – Warum entscheiden sich Maturand/innen (nicht) für ein Studium an der ETH Zürich? Available online at: www.equal.ethz.ch/studien.

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Overview of Results and Recommendations

RESULTS	RECOMMENDATIONS
1. The interest in MINT subjects develops in children at an early age. At Matura level, considerably more men than women choose the math/physics profile. Young women interested in mathematics and physics mostly opt for studies in the MINT area at ETH Zurich.	<ul style="list-style-type: none"> > ETH promotes the ETH4Kids projects. > Activities for further education for teachers at ETH's MINT Learning Center are further developed.
2. Teachers play a key role in: <ul style="list-style-type: none"> - encouraging young women to take up MINT studies at ETH and imparting them the necessary self-confidence - familiarizing children with MINT topics and communicating contents adequately with regard to gender equality. 	
3. Women with a Matura profile focusing on biology or chemistry often decide to study medicine or biology at a university.	<ul style="list-style-type: none"> > The D-HEST "Health Sciences and Technology" study program is advertised appropriately. > New D-HEST professorships will focus on contents women find interesting.
4. Female Matura graduates are often undecided whether they want to study a MINT subject or not. Women opting for a MINT subject have difficulties deciding on whether they want to study at a university or at ETH.	<ul style="list-style-type: none"> > ETH will evaluate the possibility of advertising its study programs at the Scientifica fair. > Additionally, special emphasis will be placed on the requirements of female students.
5. The ETH study information days are widely appreciated by Matura graduates. However, many complained that two days off school are not enough to gain detailed insight into the study programs offered by different universities. More women would have visited ETH, had they been granted an additional visiting day.	
6. Female students appreciate references to practical applications as well as the possibility to combine different subjects.	<ul style="list-style-type: none"> > ETH will adapt its curricula in this regard and promote interdisciplinary and transdisciplinary study programs.
7. "Reconciliation of studies/work and family" is more important to young women than to young men.	<ul style="list-style-type: none"> > ETH will provide more detailed information on job profiles and careers, also by involving alumnae to a larger extent.
8. Studies at ETH Zurich are considered to be challenging, high-quality, and difficult. The view that ETH students tend to be "nerds" is shared by women and men.	<ul style="list-style-type: none"> > ETH's information material is attractive not only to young men but ALSO to young women. ETH clearly communicates that there are many students with broad interests who do not fear the high requirements for studying at ETH.

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