



Inclusive Classrooms

Joelyn de Lima Ph.D.
Teaching Support Centre
cape.epfl.ch

1



Learning objectives

- Reflect on the importance of self-awareness as an important component of inclusive teaching
- Increase awareness of human tendencies and develop strategies to moderate their impact
- Construct arguments to support inclusivity in classrooms using evidence from literature
- Develop strategies inclusivity in lessons using universal design for learning



2

EPFL

Inclusive Classrooms

Inclusion and Inclusivity

- **Inclusion:** The degree to which, the classroom physical environment and the interactions that occur as a function of the course produce, is **welcoming and provides opportunities for success for all identities**.
- **Inclusivity:** The practice of including people across differences. Inclusivity implies an **intentional practice** of recognizing and working to mitigate biases that lead to marginalization or exclusion of some people.

Dewsbury, B., & Brame, C. J. (2019)

3

EPFL

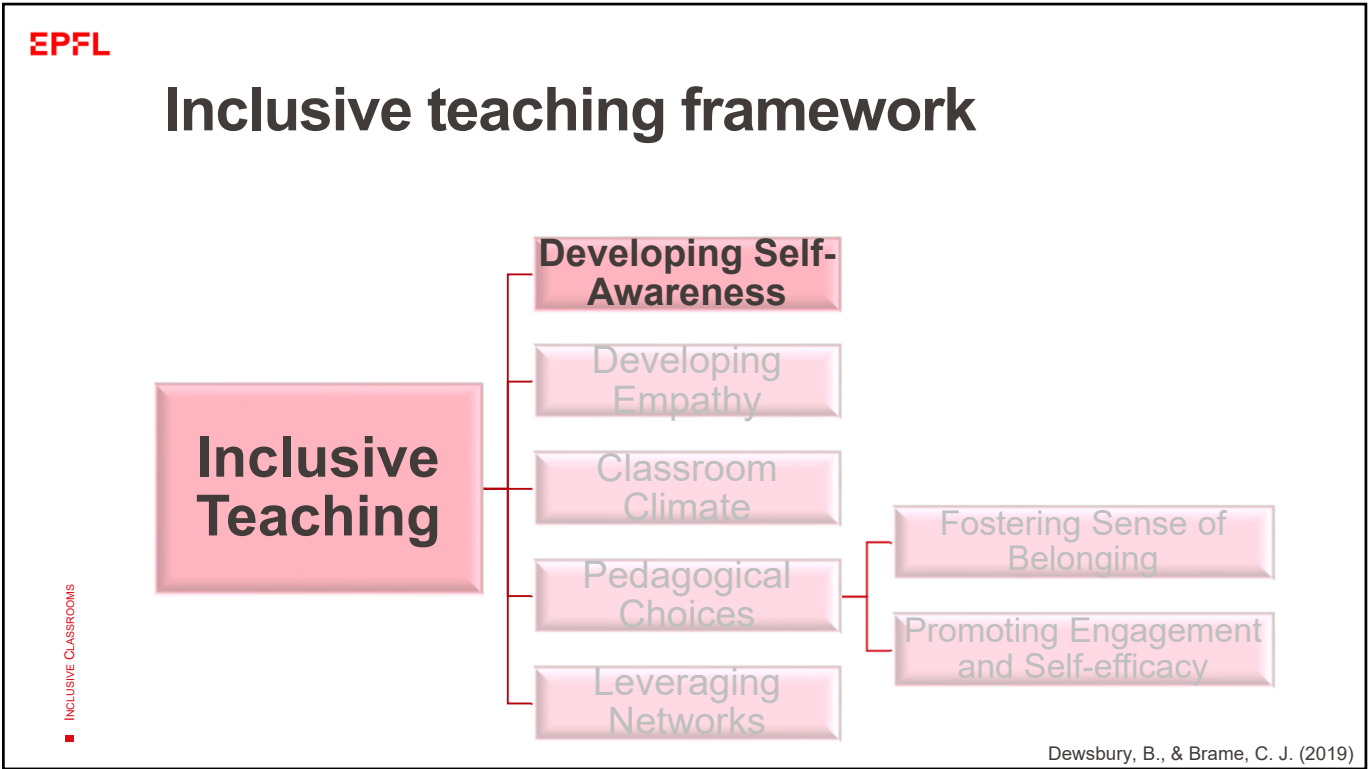
Inclusive Classrooms

Inclusive teaching framework

```
graph LR; SA[Self-awareness] -- "greater  
results in better ability to have" --> E[Empathy]; E -- "and utilize a varied" --> P[Pedagogy]; E -- "and develop a trusting" --> CC[Classroom climate]; E -- "and effectively use" --> NL[Network leverage]; P -- "leads to" --- CC; CC -- "leads to" --- NL; NL -- "leads to" --- SA;
```

Dewsbury, B. M. (2020)

4



5

EPFL

Identity pie

List some aspects of your identity

■

■

■

■

■

■

■

■

Based on their relative importance to you – slice your pie

■ INCLUSIVE CLASSROOMS

✍

6

Joelyn de Lima

3

EPFL

Unpacking microaggressions

Commonplace daily **verbal**,
behavioural or environmental slights,
whether **intentional or unintentional**,
that communicate **hostile, derogatory**,
or negative attitudes toward
stigmatized or culturally marginalized
groups



Image credit: Simmons University Institute for Inclusive Leadership

**It's the impact that matters – not
the intent**

<https://en.wikipedia.org/>

INCLUSIVE CLASSROOMS

7

EPFL

Implicit bias

- Implicit bias is a form of bias that **occurs automatically and unintentionally**, that nevertheless **affects judgments, decisions, and behaviours**.
- Some implicit biases:
 - **Gender – Career**: family and females & career and males
 - **Gender – Science**: liberal arts and females & science and males
 - **Sexuality**: preference for straight relative to gay people
 - **Age**: preference for young over old
 - **Weight**: preference for thin people relative to fat people
 - **Skin-tone**: preference for light-skin relative to dark-skin

U. S. National Institute of Health; Project Implicit

INCLUSIVE CLASSROOMS

8

EPFL

How micro discriminations add up to big differences

■ When considering requests from prospective students seeking mentoring in the future, faculty were significantly more responsive to White males than to all other categories of students, collectively, particularly in higher-paying disciplines and private institutions

■ Has implications for future pay gaps

Response Rate Relative to white Male Students

Public School

Private School

+3%

+4%

0%

+3%

0%

-9%

-7%

-2%

-10%

-6%

-13%

-12%

-5%

-13%

-21%

-8%

-14%

-19%

Caucasian F

Black F

Black M

Hispanic F

Hispanic M

Chinese F

Chinese M

Indian F

Indian M

(Discrimination against white males)

over 6,500 professors at top U.S. universities drawn from 89 disciplines and 259 institutions

Milkman, et.al., (2015). What happens before? A field experiment exploring how pay and representation differentially shape bias on the pathway into organizations. *Journal of Applied Psychology*, 100(6), 1678–1712. <https://doi.org/10.1037/apl0000022>

INCLUSIVE CLASSROOMS

9

EPFL



Photo by Naassom Azevedo on Unsplash

Milkman, et.al., (2012). Temporal Distance and Discrimination: An Audit Study in Academia. *Psychological Science*, 23(7), 710–717. <https://doi.org/10.1177/0956797611434539>

INCLUSIVE CLASSROOMS

10

Joelyn de Lima

5

EPFL



INCLUSIVE CLASSROOMS

Hoffman, et. al.,(2016). Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *PNAS*, 113(16), 4296–4301. <https://doi.org/10.1073/pnas.1516047113>

Photo by freestocks.org

Goldin, C., & Rouse, C. (2000). Orchestrating Impartiality: The Impact of “Blind” Auditions on Female Musicians. *American Economic Review*, 90(4), 715–741. <https://doi.org/10.1257/aer.90.4.715>

Photo by Samuel Sianipar, Unsplash

11

EPFL

How can we reduce unintentional bias?

Thinking back to the 3 stories I have told, what are 1-2 common features of the conditions which reduced bias?

- Pain medication
- Auditioning for the orchestra
- Meeting a student

INCLUSIVE CLASSROOMS

12

Joelyn de Lima

6

EPFL

How can we reduce unintentional bias?



Think of teaching a session where you ask students a lot of questions and they ask you a lot of questions.

Where could unintentional bias manifest?

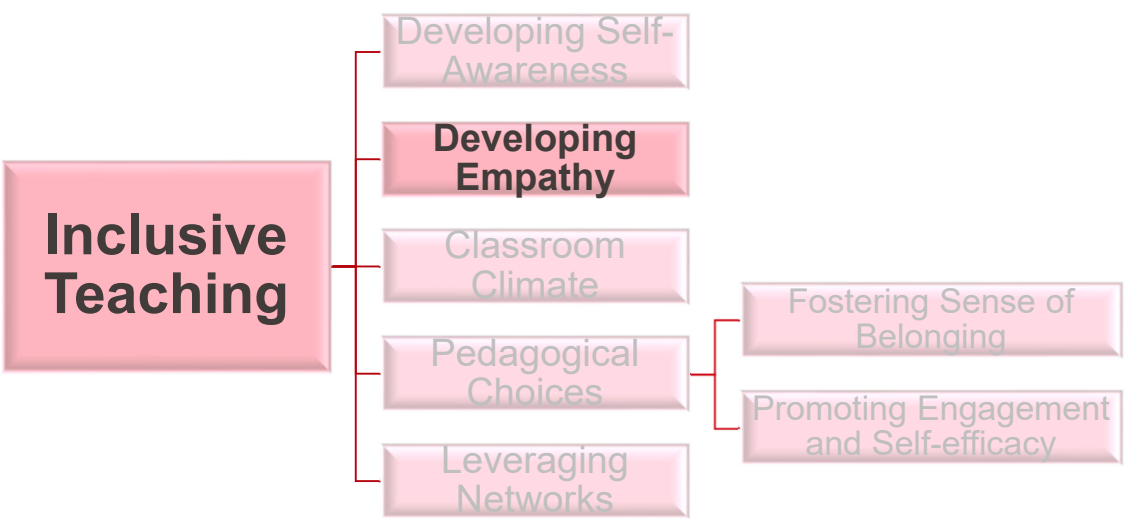
How could you mitigate the impact of bias?

INCLUSIVE CLASSROOMS

13

EPFL

Inclusive teaching framework



```
graph LR; IT[Inclusive Teaching] --- DSA[Developing Self-Awareness]; IT --- DE[Developing Empathy]; IT --- CC[Classroom Climate]; IT --- PC[Pedagogical Choices]; IT --- LN[Leveraging Networks]; PC --- FSB[Fostering Sense of Belonging]; PC --- PES[Promoting Engagement and Self-efficacy]
```

The diagram illustrates the Inclusive Teaching framework. A central box labeled "Inclusive Teaching" is connected to five boxes: "Developing Self-Awareness", "Developing Empathy", "Classroom Climate", "Pedagogical Choices", and "Leveraging Networks". The "Pedagogical Choices" box is further connected to two additional boxes: "Fostering Sense of Belonging" and "Promoting Engagement and Self-efficacy".

INCLUSIVE CLASSROOMS

Dewsbury, B., & Brame, C. J. (2019)

14

EPFL

D
I
V
E
R
S
I
T
Y

Sex

G
A
M
E

Gender



Work with your neighbour and come up with as many words as you can that start with each of these letters and help describe all that encompasses ‘diversity’.

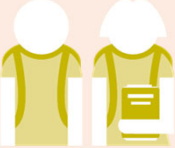
Think both of “**Seen**” and “**Unseen**” aspects of diversity

■ INCLUSIVE CLASSROOMS

15

EPFL

Students in Higher Ed in Switzerland



53% are women



Average age is 25.9 years



5.4% have children



73% work for pay



18% have long-term health problems



53% First generation college



33% have a migration background

■ INCLUSIVE CLASSROOMS

Federal Statistical Office, Switzerland

16

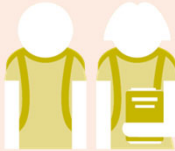
Joelyn de Lima

8

EPFL

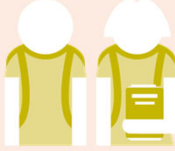
A diverse student body at EPFL

Bachelor's level:



31% are female

Master's level:



30% are female



Top 10 represented countries in Masters admissions



120 nationalities are represented on campus



~11% have chronic diseases of which only 21% receive support from EPFL

Based on students admitted in 2022-23

EPFL sans barrière

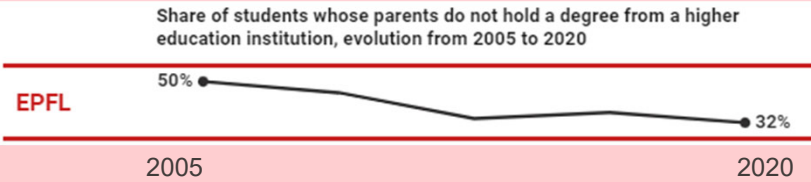
INCLUSIVE CLASSROOMS: SUSTAINABLE CLASSROOMS

17

EPFL

Is EPFL becoming less inclusive for first-gen students?

Share of students whose parents do not hold a degree from a higher education institution, evolution from 2005 to 2020



Higher education institution

Higher vocational education

Upper secondary education: general

Upper secondary education: vocational

Compulsory school

EPFL	73%	6%	13%	
ETHZ	65%	11%	17%	
Universities	52%	11%	23%	7%
Universities of applied sciences	36%	16%	33%	8%
Universities of teacher education	33%	12%	41%	6%
Average	47%	12%	27%	7%

<https://www.epfl.ch/about/facts/social-mix-at-epfl/>

INCLUSIVE CLASSROOMS: SUSTAINABLE CLASSROOMS

18

Joelyn de Lima

9

EPFL

A work in progress

Expanding, recognizing and understanding diversity at EPFL

▪ Recognizing the breadth of diversity and the needs of different groups

INCLUSIVE CLASSROOMS

Equal Opportunity & Diversity Action Plan

2021-2024



https://www.epfl.ch/about/equality/wp-content/uploads/2022/02/2022_EPFL_EO_ACTION_PLAN_EN_web.pdf

EPFL

How would you respond?



It is the end of the semester and a student writes to you to ask you if they could take the exam later because they have to go for their father’s funeral.

You remember that earlier in the semester this same student had requested an extension on an assignment because their father died.

What do you do?

INCLUSIVE CLASSROOMS

EPFL

We make assumptions too



■ INCLUSIVE CLASSROOMS

- What are some assumptions you might make about your students?
- Round Robbin



21

EPFL

What are the assumptions... ...what could you say instead?

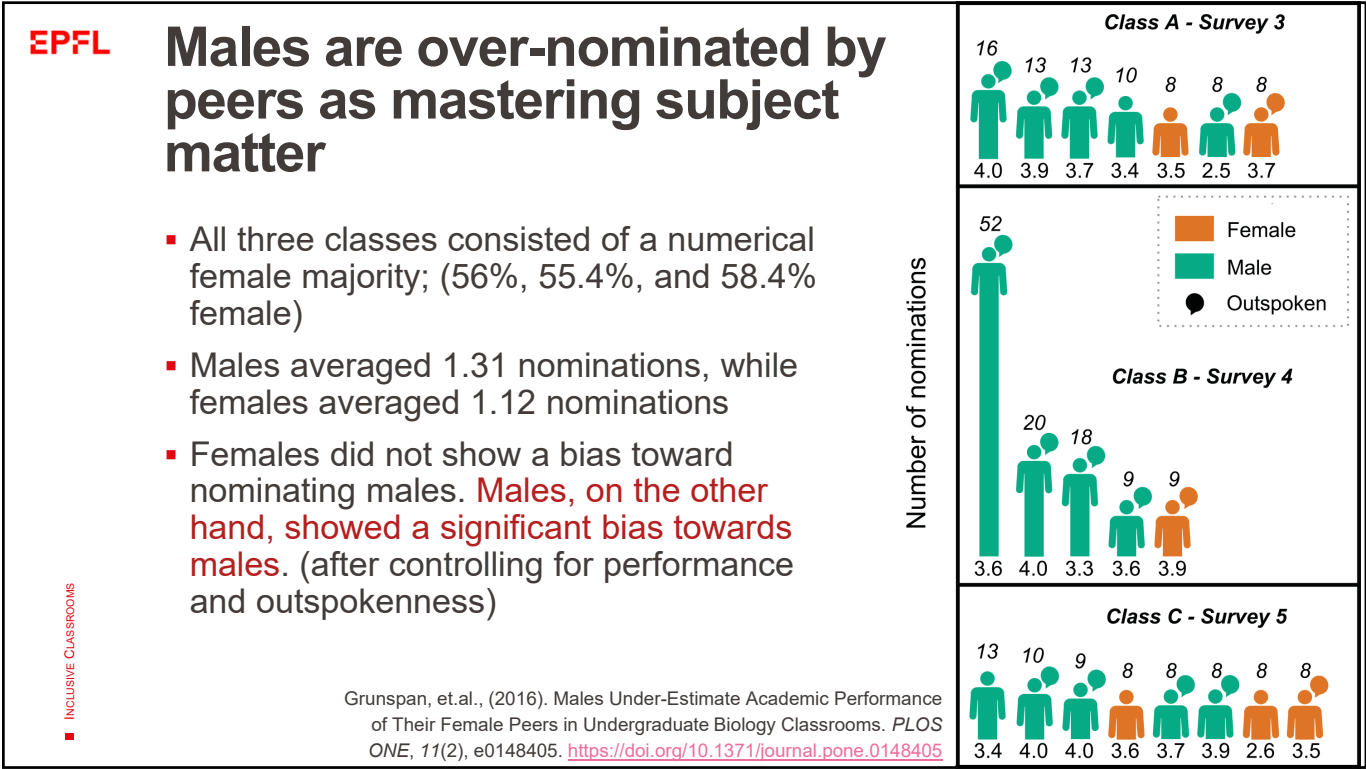
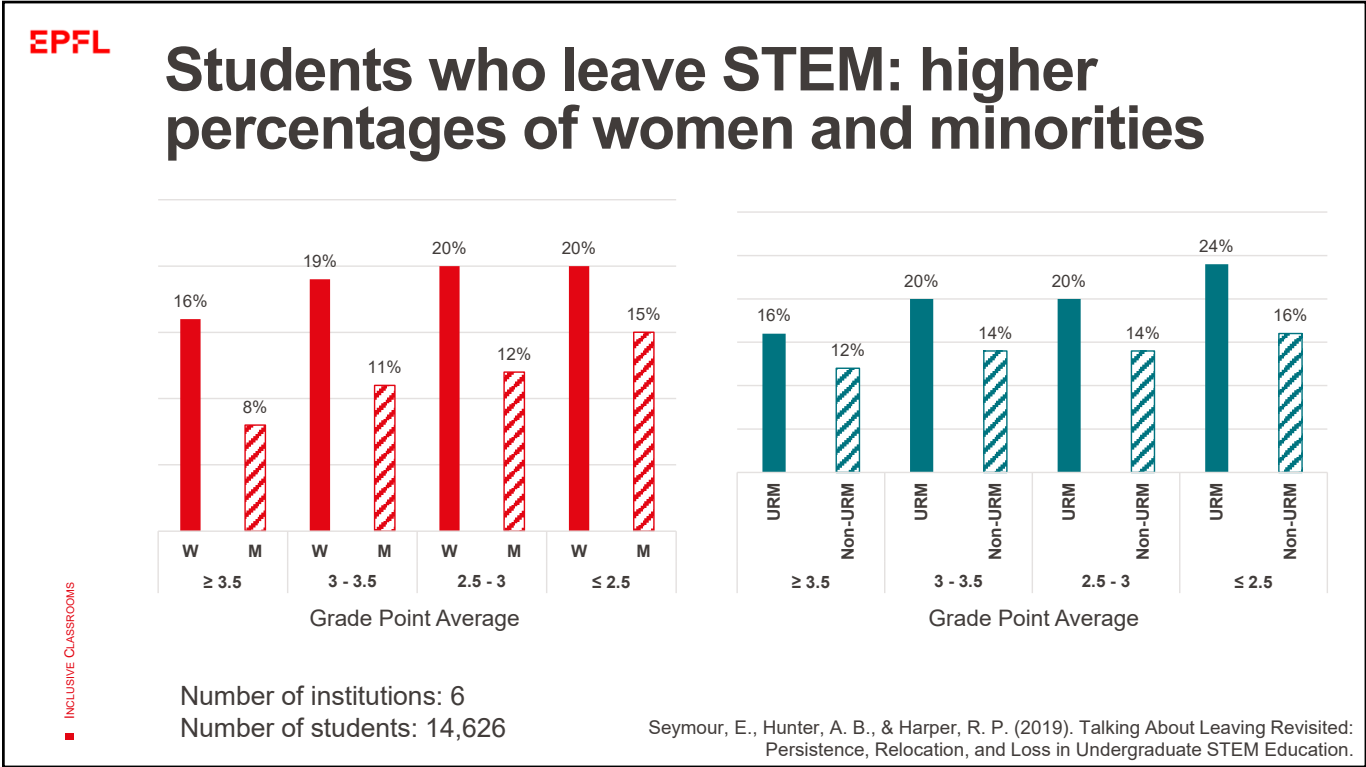


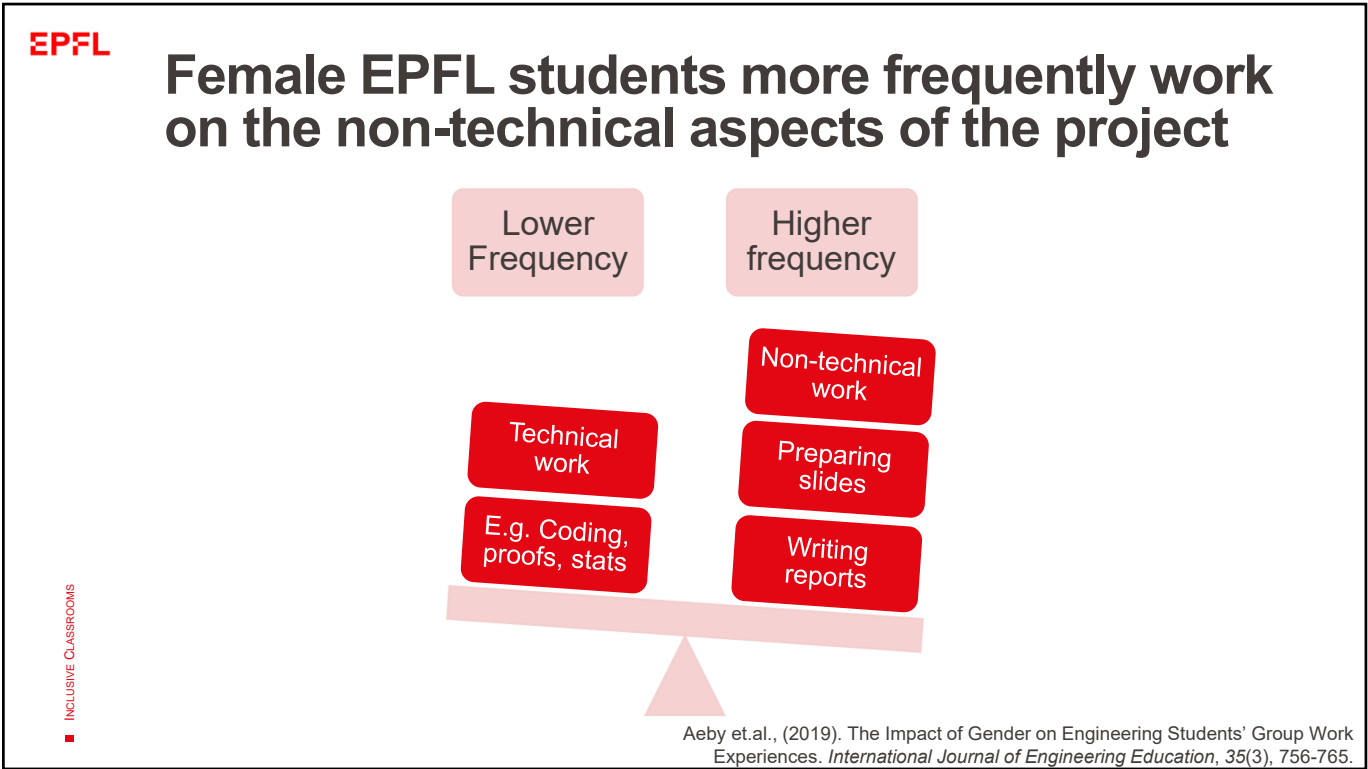
■ INCLUSIVE CLASSROOMS

When your parents were in college, the chemistry they learnt...	When I was in college, the chemistry I learnt...
When you go skiing for a holiday....	When you go for a holiday...
If your wife or husband has cancer one day...	If your loved one has cancer one day...
When a physicist sets up an experiment, he...	When a physicist sets up an experiment, they...

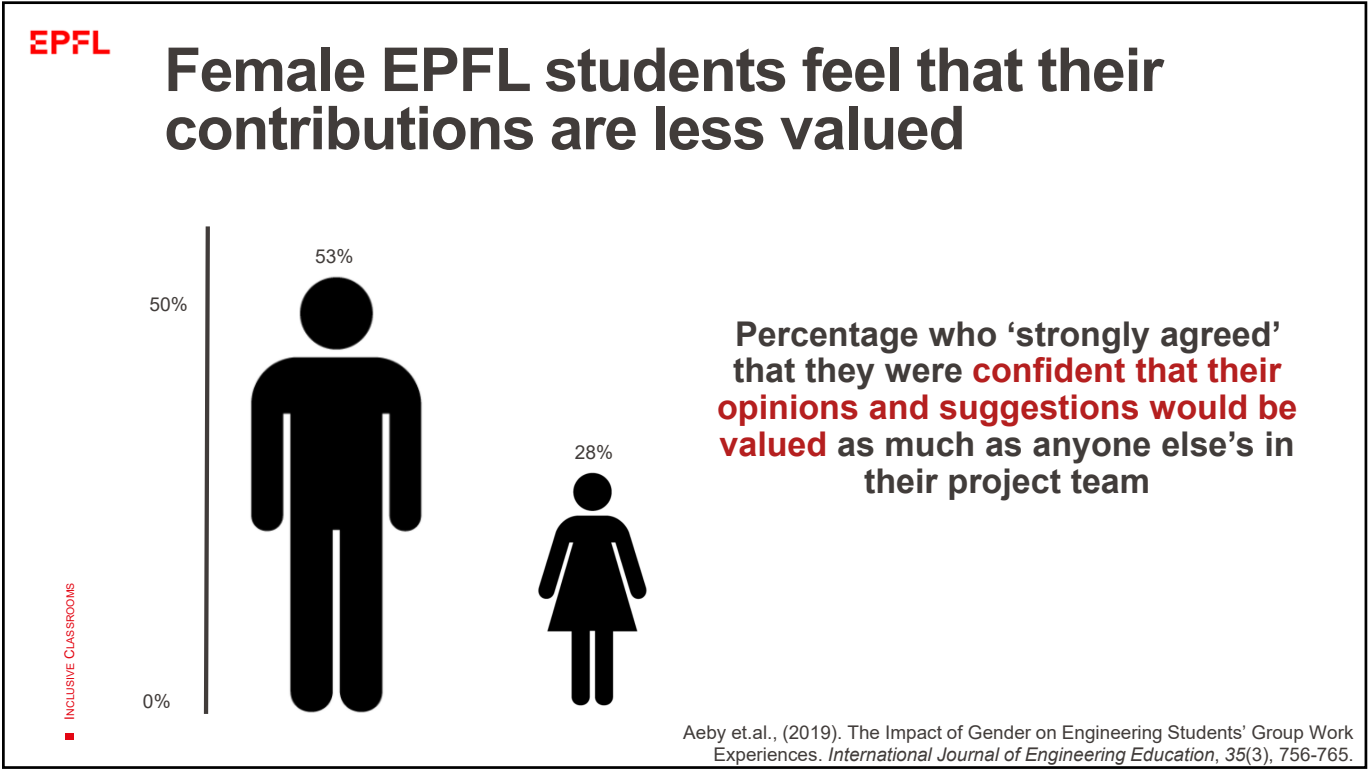
Adapted from: Tanner, K., & Allen, D. (2007).

22





25



26

EPFL

Students make assumptions too!



- As a student, what are some assumptions you made about your teachers?
- What are some assumptions your students could make about you?

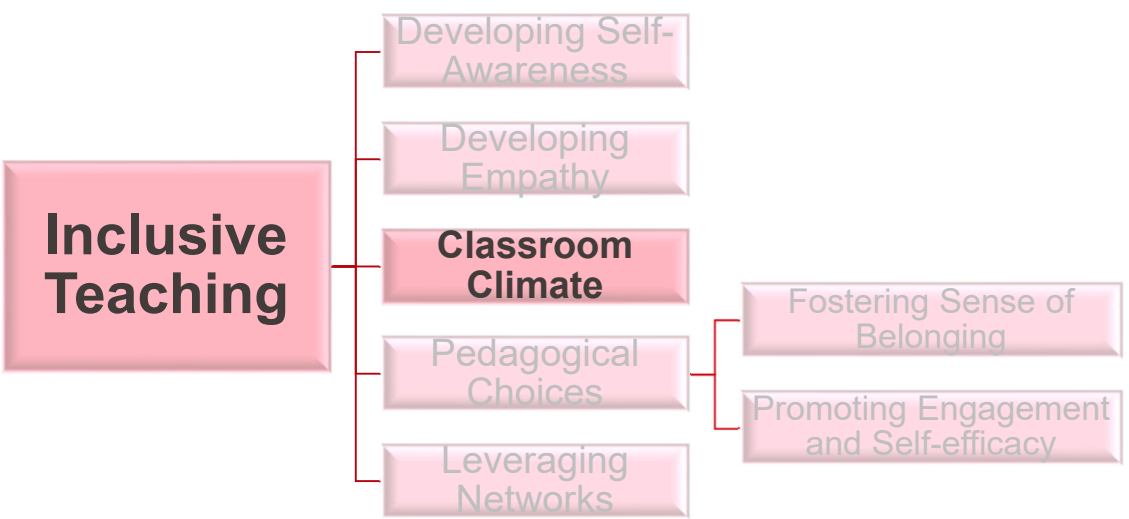
Think about various aspects of diversity – real or perceived.

INCLUSIVE CLASSROOMS

27

EPFL

Inclusive teaching framework



```
graph LR; IT[Inclusive Teaching] --- DSA[Developing Self-Awareness]; IT --- DE[Developing Empathy]; IT --- CC[Classroom Climate]; IT --- PC[Pedagogical Choices]; IT --- LN[Leveraging Networks]; PC --- FSB[Fostering Sense of Belonging]; PC --- PES[Promoting Engagement and Self-efficacy]
```

The diagram illustrates the Inclusive Teaching framework. It starts with a central box labeled 'Inclusive Teaching'. This box is connected to five main components: 'Developing Self-Awareness', 'Developing Empathy', 'Classroom Climate', 'Pedagogical Choices', and 'Leveraging Networks'. The 'Pedagogical Choices' component is further broken down into two sub-components: 'Fostering Sense of Belonging' and 'Promoting Engagement and Self-efficacy'.

INCLUSIVE CLASSROOMS

Dewsbury, B., & Brame, C. J. (2019)

28

We bring ourselves into the classroom

Teachers:

- our identities,
- assumptions and biases,
- cultural values,
- prior experiences,
- preferred teaching approaches,
- personalities,
- expertise in our specializations.

Students:

- Their identities
- assumptions and biases,
- cultural values,
- prior experiences,
- ...

Our EPFL classrooms are not inclusive

- One-third of the female student respondents report having been victim of **unwanted physical contact**, 14% report being the **victim of a sexual assault** and 2.8% report being **victim of a rape** during their work or studies
- For students who signalled being a target of **inappropriate remarks**, **79.4% of these remarks took place in a classroom.**
- **Classrooms were the second most common location** where sexual harassment and violence was witnessed.

EPFL

Students cause chilly classroom climates

- Making disparaging remarks, interrupting when a female student is speaking
- Showing condescending facial expressions in response to questions from female students
- Data from several studies found that **70–90% of women** reported at least one incident in which a **male student created a negative situation for them in class**

■ INCLUSIVE CLASSROOMS

Wenzel & College, (2002).

31

EPFL

Teachers cause chilly classroom climates with verbal and non-verbal behaviours

- Calling more on the male students
- Posing **easier questions to women** and more difficult or thoughtful ones to men
- **Males were often asked more follow-up questions** or had more responses than females.
- Responses from **males were praised for their intellectual content** more often than those from women
- **Women were on the receiving end of chillier body language** (turning away, failing to make eye contact, or other signs of inattentiveness, such as looking at a watch)

In one study, **76% of the women**, but less than half of the men, reported **feelings of fear, humiliation, or intimidation in courses taught by males**

■ INCLUSIVE CLASSROOMS

Wenzel & College, (2002).

32

EPFL

How hard do you have to work to get good grades?



INCLUSIVE CLASSROOMS

It was mid semester when we had our first exam for that course. The moment I got it back, **I had to realise that my grade was drastically lower than the one of a friend** who had the exact same answers. I went to the teacher, asking why my grade was so significantly lower. He answered: “You are a girl, and **girls in engineering simply have to work harder than boys to achieve the same grade.**”

EPFL Polyquity

33

EPFL

Words matter...

I don't know why you do not like Calculus. It really isn't that hard.

I got an A in that class, and I did not have to study at all

Okay, this next type of calculation is very straightforward so you shouldn't have any problems.

You don't need to understand it, you just have to plug and chug.

INCLUSIVE CLASSROOMS

Thanks to Dr. Cori Fata-Hartley, MSU College of Nat Sci, MSU

34

EPFL

A warm classroom climate

- Increases sense of belonging
 - Increases motivation, self-efficacy, and **academic achievement**

INCLUSIVE CLASSROOMS

■

Freeman, et. al., (2007); Zumbrunn, et.al., (2014)

35

EPFL

The power of a “growth mindset”

150 STEM professors and more than 15,000 students

In classes taught by fixed mindset faculty:

- Achievement gaps were twice as large**
- Students were demotivated and had more negative experiences in classes

INCLUSIVE CLASSROOMS

■

Canning, et.al.,(2019). STEM faculty who believe ability is fixed have larger racial achievement gaps and inspire less student motivation in their classes. Science Advances, 5(2), eaau4734. <https://doi.org/10.1126/sciadv.aau4734>

STEM course grade

Mindset	White/Asian	URM
Fixed	~2.90	~2.72
Growth	~3.05	~2.95

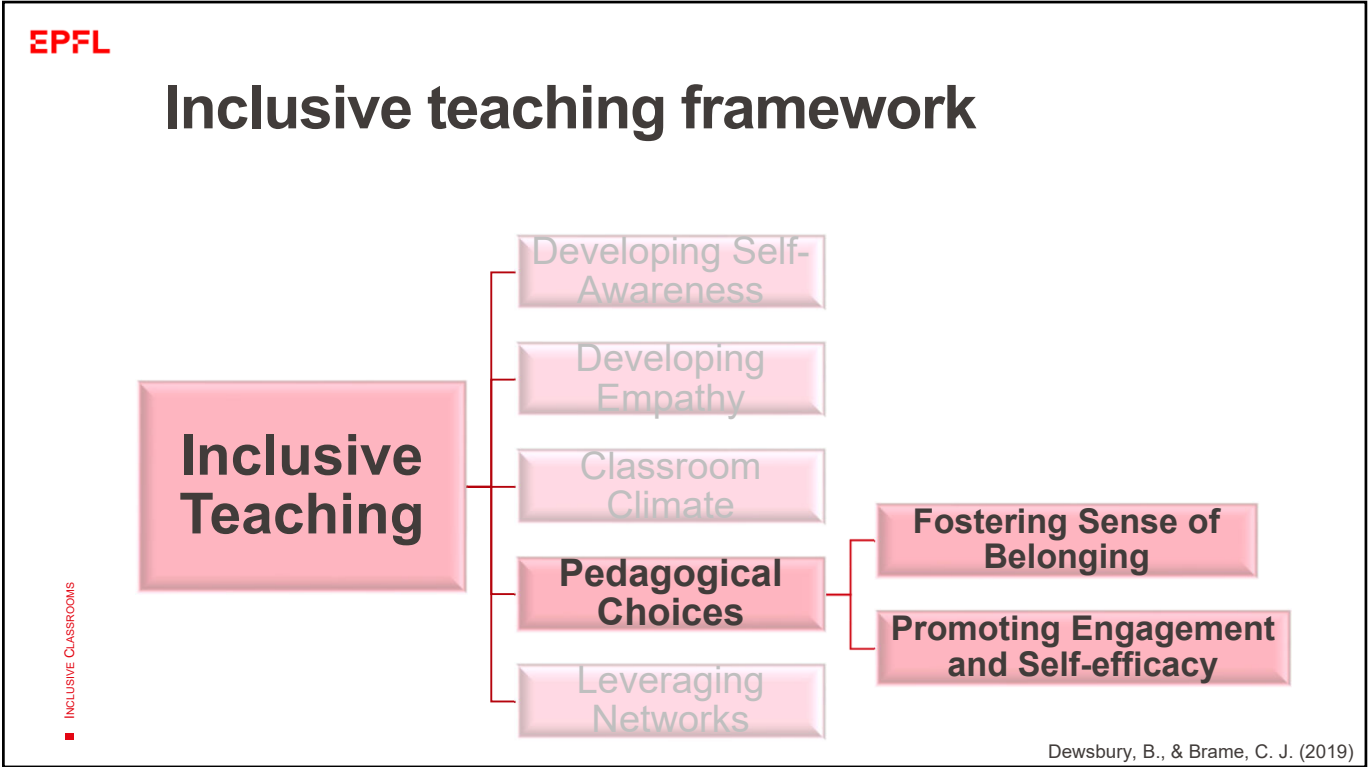
Course evaluations

Question	Fixed	Growth
How much did your instructor motivate you to do your best work?	~2.82	~3.02*
How much did the instructor emphasize learning & development?	~3.00	~3.18**
How likely would you be to recommend this course with this instructor?	~3.12	~3.28**
Compared to other courses you've taken how much time did this course require?	~3.38	~3.32ns

36

Joelyn de Lima

18



37

EPFL

Self-reflection



- Think of a class (or a situation) where you felt like the outsider.
- What could the teacher/students have done to make you feel like you belonged?

■ INCLUSIVE CLASSROOMS



38

EPFL

Using counterstereotypical examples of scientists in homework enhances belonging

Students in experimental group:

- conveyed an enhanced ability to personally relate to scientists following the intervention
- these shifts were maintained 6 months after the completion of the course
- earned significantly higher grades**

INCLUSIVE CLASSROOMS

Schinske, et.al., (2016). Scientist Spotlight Homework Assignments Shift Students' Stereotypes of Scientists and Enhance Science Identity in a Diverse Introductory Science Class. *CBE—Life Sciences Education*, 15(3), ar47. <https://doi.org/10.1187/cbe.16-01-0002>

Treatment Effects On Student Ratings of Relating to Scientists

Treatment	Beginning of Course	End of Course
Course Reader Homework	~2.5	~2.5
Scientist Spotlight Homework	~2.5	~3.5

*p = .004

(a) Treatment & Course Grades

Treatment	Average Course Grade (0=F, 4=A)
Course Reader Homework	~2.2
Scientist Spotlight Homework	~2.8

*p = .018

EPFL

Learning students names influences student behaviour and attitudes

Student feels that instructors are more likely to provide student with letter of recommendation or mentoring 6.70%

Student feels it builds classroom community 14.20%

Student feels it builds student–instructor relationships 23.10%

Student feels enhanced performance in the course or confidence in the material 11.90%

Student feels more comfortable getting help 19.40%

Student feels more invested in the course 19.40%

Student feels more valued 30.60%

78% of students perceived that an instructor of this course knew their names. However, instructors only knew 53% of names, indicating **that instructors do not have to know student names in order for students to perceive that their names are known.**

INCLUSIVE CLASSROOMS

Cooper, et.al., (2017). What's in a Name? The Importance of Students Perceiving That an Instructor Knows Their Names in a High-Enrollment Biology Classroom. *CBE—Life Sciences Education*, 16(1), ar8. <https://doi.org/10.1187/cbe.16-08-0265a>

EPFL

Fostering a sense of belonging

- Make place for students personal narratives in your class
- Create opportunities for informal interactions (before class, in the corridors, etc.)
- Give students a voice and agency – they are an integral part of the classroom.
- Lots of feedback – and thereby communication

INCLUSIVE CLASSROOMS

Dewsbury, B., & Brame, C. J. (2019)

41

EPFL

Active learning narrows achievement gaps for underrepresented students in undergraduate STEM

- Active learning **reduced achievement gaps in examination scores by 33% and narrowed gaps in passing rates by 45%.**
- Only classes that implemented high-intensity active learning narrowed achievement gaps

INCLUSIVE CLASSROOMS

A

Treatment	Exam Score Gap (sd)
Passive	-0.65
Active	-0.40

B

Treatment	Gap in Percent Passing (%)
Passive	-7.5
Active	-4.0

student examination scores: 15 studies (9,238 total students)
student failure: 26 studies (44,606 total students).

Theobald, et.al., (2020). Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math. *Proceedings of the National Academy of Sciences*, 117(12), 6476–6483. <https://doi.org/10.1073/pnas.1916903117>

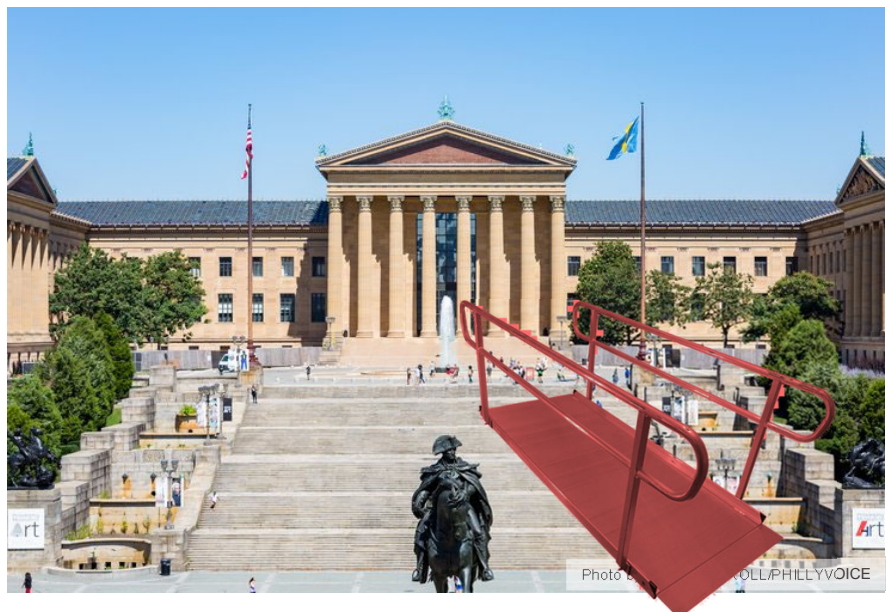
42

Strategies to increase inclusiveness

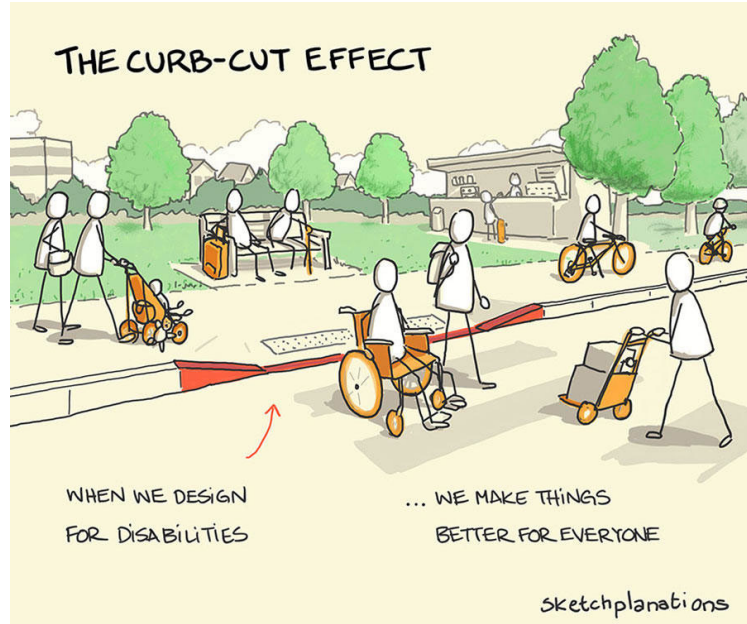
- Based on the Tanner reading – discuss some strategies that you could use in your class
- Think of in person – and online learning spaces

Learning from architecture

How to make architecture more accessible?



Incorporating accessibility into design



45

Universal Design for Learning (UDL)

- Grew from ideas about making architecture more accessible
- Not JUST for students with disabilities

Universal design focuses on **eliminating barriers through initial designs** that consider the needs of diverse people, rather than overcoming barriers later through individual adaptation

46

EPFL

Universal Design for Learning (UDL)



Who would this benefit?

- Closed captions
- Using a microphone
- Using structure rather than colour in graphs

Group discussion



Category	Bad	Good
A	4.3	2.4
B	2.5	4.4

INCLUSIVE CLASSROOMS

47

EPFL

Principles of UDL

1. Multiple means of representation
2. Multiple means of expression
3. Multiple means of engagement

INCLUSIVE CLASSROOMS

Rose, et.al. (2006).

48

EPFL

Multiple Means of Representation

- Students differ in how they **access and process information**
- Make information accessible!
- Use multiple means of representation

■ INCLUSIVE CLASSROOMS

49

EPFL

Multiple Means of Expression

- Students differ in how they **demonstrate their knowledge**
- Provide alternate means of expression

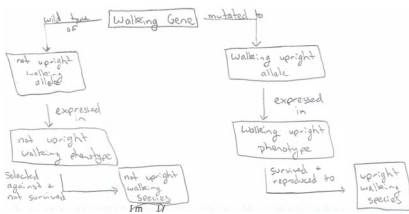
■ INCLUSIVE CLASSROOMS

50

EPFL

Students **expressed different ideas** in written narratives v/s constructed models

When the human species started without enlarged heels it soon found that their were stronger predators. Humans started to adapt to their needs and their surroundings and began to develop stronger more supportive heels for their bodies.



de Lima, J. (2021). Contextual Influences on Undergraduate Biology Students' Reasoning and Representations of Evolutionary Concepts. Michigan State University.

At EPFL:
Adding 30 minutes to the exam, without changing the wording or number of questions, reduces stress. But, given more time, other **students score almost an entire grade point higher.**



https://learn.epfl.ch/news_learn/raising-the-first-year-pass-rate-without-compromising-on-standards/

INCLUSIVE CLASSROOMS

EPFL

Multiple Means of Engagement

- Students differ in their comfort with **levels and types of engagement**
- Students have different motivating factors

Intellectual engagement matters!

INCLUSIVE CLASSROOMS

EPFL

How could you modify your lecture using UDL?



1. Multiple means of **representation**
2. Multiple means of **expression**
3. Multiple means of **engagement**

■ INCLUSIVE CLASSROOMS

53

EPFL

Good Teaching

Results in increased **learning**

■ INCLUSIVE CLASSROOMS

54

EPFL

Inclusive Teaching

Developing Self-Awareness

Developing Empathy

Classroom Climate

Pedagogical Choices

Leveraging Networks

Fostering Sense of Belonging

Promoting Engagement and Self-efficacy

Dewsbury, B., & Brame, C. J. (2019)

INCLUSIVE CLASSROOMS

55

EPFL

You and your students can get help on campus

Equality and Diversity

Equal opportunities are an integral part of EPFL's development and excellence policy. The Equal Opportunity Office is attached to the Vice Presidency for Responsible Transformation (VPT).

<https://www.epfl.ch/about/equality/>

POLYQUITY

Towards gender equality on EPFL campus

<https://polyquity.agepoly.ch/>

Psychosocial risks

How to get help and support in the event of a threat to physical or mental health, and how to report issues.

Trust and Support Network

Internal and external instances of EPFL with a mandate to provide initial assistance in situations of discrimination and psychosocial risks.

Safe Space

A group that supports the LGBT+ community at EPFL through help, mentorship, and proposals for a more inclusive campus.

Family and work-life

Find out about our measures for reconciling maternity or paternity with studies or work at EPFL.

Equality and careers

Courses, coaching, mentoring and events for women to network, exchange experience and information.

Student services

The EPFL «Student Services» desk is the main contact point for all academic queries.

INCLUSIVE CLASSROOMS: SUSTAINABLE CLASSROOMS

Joelyn de Lima

56

Joelyn de Lima

28

EPFL

Explore and interact with disciplinary communities

SEFI European Society for Engineering Education
Europäische Gesellschaft für Ingenieur-Ausbildung
Société Européenne pour la Formation des Ingénieurs

Homepage About Membership Activities

SEFI SIG Diversity, Equity and Inclusion – “Engineering for and with all”
Home » Activities » Special Interest Groups » SEFI SIG Diversity, Equity and Inclusion – “Engineering for and with all”

EERA EUROPEAN EDUCATIONAL RESEARCH ASSOCIATION
About EERA Conferences

Networks > EERA Networks > 4. Inclusive Education

ESERA News Conferences Summer Schools Early

ESERA SIGs

ESERA SIG 5
ESERA SIG 5 Science Identities

57

EPFL

EPFL resources

- EPFL Respect training: <https://www.epfl.ch/about/respect/respect-training/>
- EPFL courses on Implicit Bias Awareness: <https://www.epfl.ch/campus/community/equality-and-careers/implicit-bias-awareness/>
- EPFL resources on inclusive language: <https://www.epfl.ch/about/equality/inclusive-language/practical-guide/principles/>
- EPFL equality and diversity office: <https://www.epfl.ch/about/equality/>

INCLUSIVE CLASSROOMS

58

EPFL

INCLUSIVE CLASSROOMS

Aeby, P., Fong, R., Vukmirovic, M., Isaac, S., & Tormey, R. (2019). The Impact of Gender on Engineering Students' Group Work Experiences. *International Journal of Engineering Education*, 35(3), 756–765.

Canning, E. A., Muenks, K., Green, D. J., & Murphy, M. C. (2019). STEM faculty who believe ability is fixed have larger racial achievement gaps and inspire less student motivation in their classes. *Science Advances*, 5(2), eaau4734. <https://doi.org/10.1126/sciadv.aau4734>

Cooper, K. M., Haney, B., Krieg, A., & Brownell, S. E. (2017). What's in a Name? The Importance of Students Perceiving That an Instructor Knows Their Names in a High-Enrollment Biology Classroom. *CBE—Life Sciences Education*, 16(1), ar8. <https://doi.org/10.1187/cbe.16-08-0265>

de Lima, J. (2021). Contextual Influences on Undergraduate Biology Students' Reasoning and Representations of Evolutionary Concepts. Michigan State University.

Dewsbury, B., & Brame, C. J. (2019). Inclusive Teaching. *CBE—Life Sciences Education*, 18(2), fe2. <https://doi.org/10.1187/cbe.19-01-0021>

Freeman, T. M., Anderman, L. H., & Jensen, J. M. (2007). Sense of Belonging in College Freshmen at the Classroom and Campus Levels. *The Journal of Experimental Education*, 75(3), 203–220. <https://doi.org/10.3200/JEXE.75.3.203-220>

Goldin, C., & Rouse, C. (2000). Orchestrating Impartiality: The Impact of “Blind” Auditions on Female Musicians. *American Economic Review*, 90(4), 715–741. <https://doi.org/10.1257/aer.90.4.715>

Grunspan, D. Z., Eddy, S. L., Brownell, S. E., Wiggins, B. L., Crowe, A. J., & Goodreau, S. M. (2016). Males Under-Estimate Academic Performance of Their Female Peers in Undergraduate Biology Classrooms. *PLOS ONE*, 11(2), e0148405. <https://doi.org/10.1371/journal.pone.0148405>

Hoffman, K. M., Trawalter, S., Axt, J. R., & Oliver, M. N. (2016). Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *Proceedings of the National Academy of Sciences*, 113(16), 4296–4301. <https://doi.org/10.1073/pnas.1516047113>

EPFL

INCLUSIVE CLASSROOMS

Milkman, K. L., Akinola, M., & Chugh, D. (2012). Temporal Distance and Discrimination: An Audit Study in Academia. *Psychological Science*, 23(7), 710–717. <https://doi.org/10.1177/0956797611434539>

Milkman, K. L., Akinola, M., & Chugh, D. (2015). What happens before? A field experiment exploring how pay and representation differentially shape bias on the pathway into organizations. *The Journal of Applied Psychology*, 100(6), 1678–1712. <https://doi.org/10.1037/apl0000022>

Rose, D. H., Harbour, W. S., Johnston, C. S., Daley, S. G., & Abarbanell, L. (2006). Universal Design for Learning in Postsecondary Education: Reflections on Principles and their Application. *Journal of Postsecondary Education and Disability*, 19(2).

Schinske, J. N., Perkins, H., Snyder, A., & Wyer, M. (2016). Scientist Spotlight Homework Assignments Shift Students' Stereotypes of Scientists and Enhance Science Identity in a Diverse Introductory Science Class. *CBE—Life Sciences Education*, 15(3), ar47. <https://doi.org/10.1187/cbe.16-01-0002>

Seymour, E., & Hunter, A.-B. (2019). Talking about Leaving Revisited: Persistence, Relocation, and Loss in Undergraduate STEM Education. Springer Nature.

Tanner, K., & Allen, D. (2007). Cultural Competence in the College Biology Classroom. *CBE—Life Sciences Education*, 6(4), 251–258. <https://doi.org/10.1187/cbe.07-09-0086>

Theobald, E. J., Hill, M. J., Tran, E., Agrawal, S., Arroyo, E. N., Behling, S., Chambwe, N., Cintrón, D. L., Cooper, J. D., Dunster, G., Grummer, J. A., Hennessey, K., Hsiao, J., Iranon, N., Jones, L., Jordt, H., Keller, M., Lacey, M. E., Littlefield, C. E., ... Freeman, S. (2020). Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math. *Proceedings of the National Academy of Sciences*, 117(12), 6476–6483. <https://doi.org/10.1073/pnas.1916903117>

Wenzel, T. J., & College, B. (2002). Controlling the climate in your classroom. *Analytical Chemistry*, 75, 311A-314A.

Zumbrunn, S., McKim, C., Buhs, E., & Hawley, L. R. (2014). Support, belonging, motivation, and engagement in the college classroom: A mixed method study. *Instructional Science*, 42(5), 661–684. <https://doi.org/10.1007/s11251-014-9310-0>

EPFL

Homework

1. Prepare your MAXI lesson for Day 5
 - Choose one of your previous lesson to REVISE
 - Audience of “first year engineering students”
 - Use the full LOAFS structure, per Day 5 lesson planning matrix
 - 20 minutes, teaching for 5 people
2. Deadlines for feedback flow:
 1. **Tuesday, 27th Feb, 14:00** – Submit your maxi lesson pla
 2. **Thursday, 29th Feb, 14:00** – Submit your reviews for two lesson plans
 3. Revise lesson plan based on review
 4. Teach on Friday



61