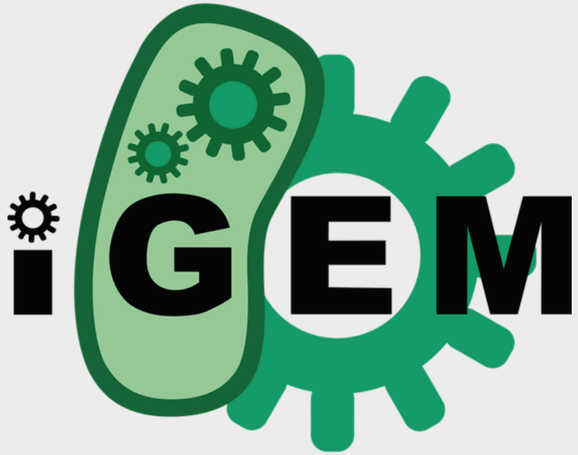
School Carreer Orientation



What are my choices?

What is iGEM?



- The biggest synthetic biology competition
- It started in MIT in 2003
- Biology is seen as engineering. We use biology as a tool to solve real problems

Who are we?



Faculty of Medicine AUTH



Faculty of Biology AUTH



Biomedical Engineering AUTH



Faculty of Medicine AUTH



Faculty of Electrical and Computer Engineering AUTH



Faculty of Agriculture AUTH



Faculty of Medicine AUTH



Faculty of Electrical and Computer Engineering AUTH



Faculty of Electrical and Computer Engineering AUTH



Faculty of Medicine AUTH

What are we to see today?

Schools and career paths

- Health Schools
- Natural Sciences
- Polytechnic

- Proffesional rights
- Pathways after degree
- Evolution options

Anxiety and Organism

- What is anxiety?
- Why does it happen?
- What happens in our brain and how to tackle it?

How do I decide university ?

There are some basic questions to ask ourselves before chosing the university department we want to study at.

For every school we should ask:

1. What major am I studying?
2. What are my proffesional rights?
3. Where can I offer my service?
4. Can I conduct research or follow Master studies?
5. How is this career according to the future?
6. Does it fit my way of thinking?

General Map of Health Studies Departments

Health Studies

Clinical

- Dentistry
- Obstetrics
- Medicine
- Veterinary
- Work Therapy
- Speech Therapy
- Nursing
- Physical Therapy

Public Health

- Food technology
- Dietology
- Public Health

Pharmaceutics and Lab

- Biomedicine
- Pharmacology
- Mollecular Biology
- Biology

What is common in Health Studies?

Not all the departments lead to the same proffesion but they are all related to empathy, protection, diagnosis, therapy and support of human health

- *They are tightly related to humans and society*
- *They demand responsibility*
- *Many of them have laboratory or clinical aspect*
- *There are pathways in hospitals, laboratories, pharmaceutical companies, research, education and public health*

Medicine

Medicine combines scientific knowledge, clinical thought and dedication to human

- ***Cities:*** *Thessaloniki (HMASCO), Athens, Ioannina, Patras,Alexandroupolis, Heraklion*
- **What do you study**: *Yoy leaarn the functions of the body, its problems and their sollutions*
- **Workplace**: *Hospitals, clinics, health centers,laboratories, the army, the fire department*
- **Options:** *Residency in Greece, abroad, academic career*

My experience in Med school

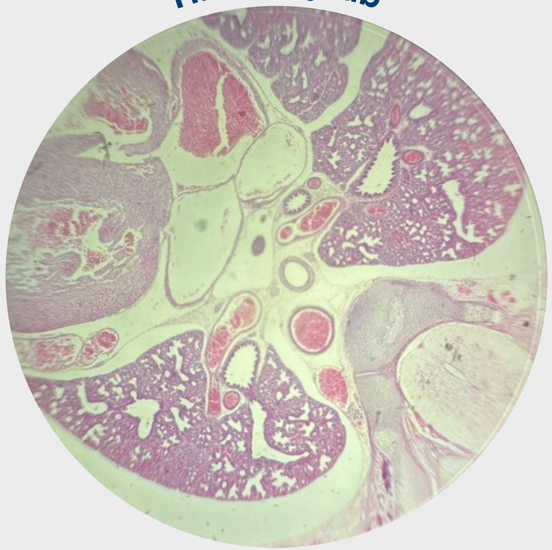
Amphitheater A



Anatomical Theater



Histology lab



Medical congress workshop



Medical congress workshop





Dentistry school

Dentistry combines health studies with practical skills focusing on the care of oral hygine and on the improvement of patient’s life.

- ***Cities***: *Athens,Thessaloniki (HMASCO)*
- **What do you study**: *Anatomy, physiology, pathology, oral biology, dental surgery, prosthetics, periondontology, endontology, orthodontics, maxillary surgeyr and preventive dentistry.*
- **Workplace**: *Private dental office,dental clinics , hospitals, universities, research centers, dental product industry*

Pathways: *Specialization on periondontology, endontology, orthodontics, maxillary surgery and preventive dentistry.*

Pharmacology

Pharmacology combines chemistry , biology and medical knowledge focusing on the development,sefety and right medication use.

- ***Cities****: Athens, Thessaloniki(HMASCO), Patras*
- **What do you study:** *Pharmacology, pharmaceutical chemistry, biochemistry, toxicology, pharmacotechnology, microbiology, cosmetology.*
- **Workplace***: Drug stores, hospitals, pharmaceutical industry, research, cosmetology industry, health organizations*
- **Career***: Development of medication, clinical trials, personalised medicine*



Nursing

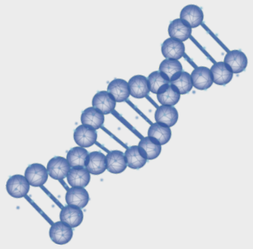
Nursing combines scientific knowledge and human care in order to support and improve patient's life

- ***Cities***: *Athens, Thessaloniki,Patras, Larissa, Ioannina, Heraklion, Tripolis, Alexandroupolis.*
- ***What do you study***: *Anatomy, physiology, pathology, pharmacology, microbiology, nursing care,emergency nursing, public health.*
- ***Workplace***: *Hospitals, private clinics, health centers,ICU, rehabilitation units,*
- ***Career***: *Specialization on ICU,emergency nursing, surgery, sterility.*

Biomedical Science

Biomedicine is the link between biology, medicine and laboratory diagnosis.

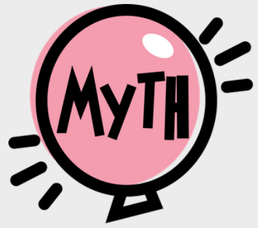
- ***Cities:*** *Thessaloniki, Athens*
- ***What do you study:*** *Laboratory health science: microbiology, hematology, immunology, clinical biochemistry, moleculaer biology, cytology, genetics, toxicology.*
- **Workplace:** *Hospitals, private clinics, diagnostic centers, molecular and genetical laboratories, pharmceutical industry, stem cells banks, criminology.*
- **Career:** *Molecular diagnosis, genetics, esearch, phamaceutical industry, personalized medicine*



Molecular biology and genetics

Molecular biology combines biology with genetics, biotechnology, biomedicine and studies how genes and cells affect health, disease and evolution

- ***Cities***: *Alexandroupolis*
- ***What do you study***: *Mollecular biology, genetics, biochemistry, cytology, microbiology,bioinformatics, genomics .*
- ***Workplace:*** *Research centers, universities, molecular labs, pharm indstry, biotechnology and criminology.*
- ***Career***: *Molecular diagnosis, genetics, esearch, phamaceutical industry, personalized medicine*



Myths about health science

Myth 1: *If I cannot become a doctor I cannot work in healthcare*

- ***Reality*:** There are many pathways in health care: pharmacology, bilogy, nursing, dietology, biomedicine, research.

Myth 2: *Health science is for those who want to see patients*

- ***Reality*:** There are laboratory, research and administrative pathways.

Myth *3:* *Degree determines my career*

- ***Reality*:** Degree is the beginning. Post-graduate, experience and skills can change your career

General Map of Natural Sciences

Natural Sciences

Analysis and model making

- *Mathematics*
- *Statistics*

Technology and data

- *Informatics*
- *Data Science*

Energy and matter

- *Chemistry*
- *Physics*

Life and environment

- *Environmental Science*
- *Agronomy*
- *Biology*
- *Geology*

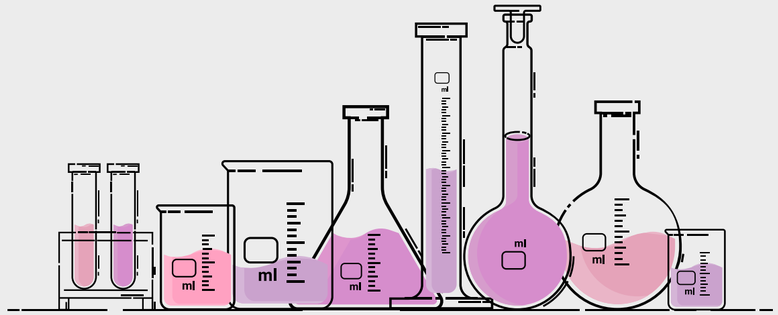
$E=m.c^2$

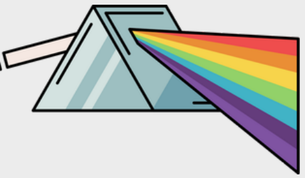
$(\sqrt[n]{a})^m = \sqrt{a^m} = a^{\frac{m}{n}}$

What is common in natural sciences?

Natural sciences teach students to understand the world through observation, experiment, mathematical thought , data analysis and problem solving

- *They provide strong theoritical backround*
- *They open pathways in research , education, technology and industry*
- *They combine with each other*
- *They are strongly corellated with data science, AI, the environment and biotechnology*





Physics

Physics is a fundamental science connected to technology, research, and the understanding of the natural world, from elementary particles to the universe.

- ***Cities:*** *Thessaloniki, Athens, Heraklion, Ioannina, Lamia, Kavala.*
- ***What you study:*** *You study the laws governing the universe: mechanics, electromagnetism, quantum physics, thermodynamics, optics, astrophysics, and modern technologies.*
- ***Job opportunities:*** *Schools, universities, research centers, technology companies, industry, laboratories, and data/technology corporations.*
- ***Future prospects:*** *Research/academic career, education, technology, data analysis, corporate career.*





Biology

Biology is a wide-ranging science connected both to health and biotechnology as well as to the environment and research

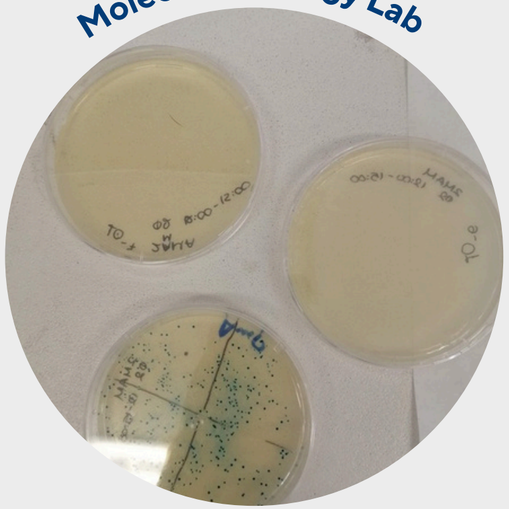
- ***Cities:*** *Thessaloniki, Athens, Heraklion, Patras, Alexandroupoli.*
- ***What you study:*** *You analyze life at the molecular, cellular, organismal, and ecological level: genetics, cell biology, biochemistry, microbiology, human and plant physiology, ecology, evolution, biotechnology.*
- ***Job opportunities:*** *Schools, universities, research centers, diagnostic/biomedical laboratories, pharmaceutical and biotechnology companies.*
- ***Future prospects:*** *Research/academic career, corporations*

My experience in Biology Dept.

Laboratory of Invertebrate Morphology and Systematics



Molecular Biology Lab



Microbiology Lab



Systematic Botanic outdoor practice



Field Exercise in Morphology and Systematics of Chordates



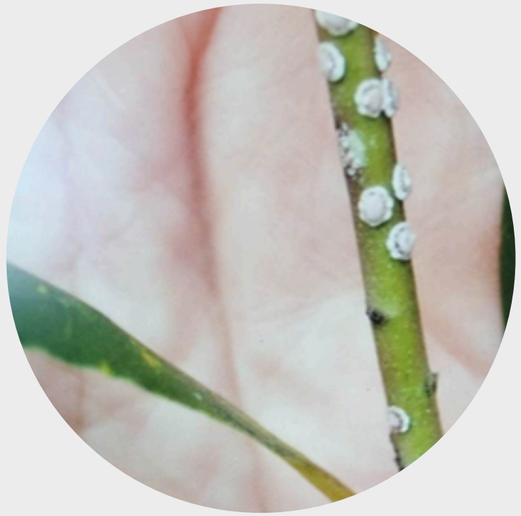
Agronomy

Agronomy combines biology, the environment, and technology, focusing on food production, sustainable agriculture, and natural resource management.

- ***Cities:*** *Thessaloniki, Athens, Volos, Larissa, Heraklion, Kalamata, Arta, Orestiada.*
- ***What you study:*** *Plant and animal production, soil science, plant protection, plant breeding (ή genetic plant improvement), agricultural economics, food technology, environment, biotechnology, and sustainable agriculture.*
- ***Job opportunities:*** *Agricultural enterprises (ή agribusinesses), food industries, agronomy offices (ή agricultural consulting firms), research centers, public agencies (ή public sectors), fertilizer/pesticide companies, cooperatives, and environmental organizations.*
- ***Future prospects:*** *Agri-food, sustainable agriculture, food safety, R&D (Research and Development), microbiology, precision agriculture, plant biotechnology, environmental management, agricultural entrepreneurship, and research.*

My experience in Agriculture Dept

Plant pathology



Food microbiology



Quality control

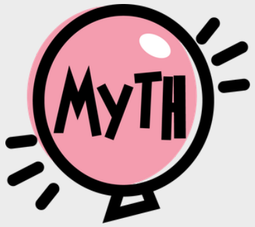


Edaphology



Entomology





Μύθοι για τις σχολές θετικών επιστημών



***Μύθος 1**: «Από θετικές επιστήμες γίνεσαι μόνο καθηγητής.»*

- **Πραγματικότητα**: Η εκπαίδευση είναι μία επιλογή, αλλά υπάρχουν διαδρομές σε βιομηχανία, έρευνα, τεχνολογία, δεδομένα, φάρμακα, ενέργεια και περιβάλλον.

***Μύθος 2**: «Το Μαθηματικό και το Φυσικό δεν έχουν πρακτική εφαρμογή.»*

- **Πραγματικότητα**: Αποτελούν βάση για τεχνητή νοημοσύνη, μοντελοποίηση, χρηματοοικονομικά, μηχανική, ενέργεια και τεχνολογία.

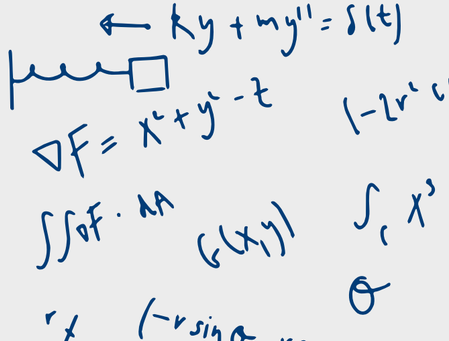
Μύθος 3: *«Οι θετικές επιστήμες δεν έχουν καμία σύνδεση με τον άνθρωπο.»*

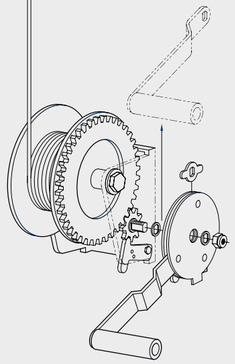
- **Πραγματικότητα**: Πλέον όλες οι επιστήμες συνδέονται μεταξύ τους και οι γνώσεις μεταφέρονται σε όλα τα πεδία, με σχολές όπως η Πληροφορική, η Φυσική και η Βιολογία να έχουν πολύ σημαντικές εφαρμογές στον άνθρωπο.

General Map of Polytechnic Schools

Polytechnic Schools

- Chemical Engineering
- Material Engineering
- Electrical and Computer Engineering
- Food Technology
- Mechanical Engineering
- Environmental Engineering
- Agronomy and Topography Engineering
- Architecture Engineering
- Civil Engineering
- Navy Engineering
- Engineering of Production and Management

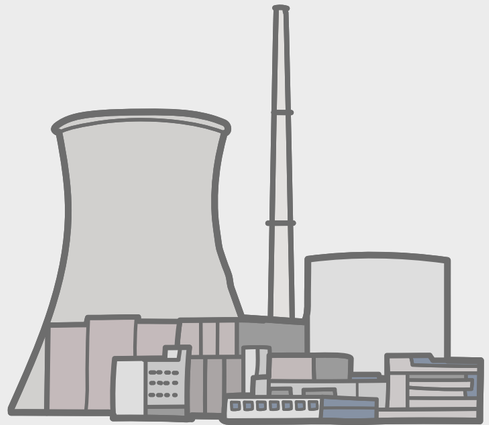




What is common in Polytechnic schools?

Engineers learn to solve practical problems by designing systems, structures, processes, products, and technologies

- *Heavy application of mathematics and physics (ń Strong emphasis on math and physics)*
- *Problem solving*
- *Design and optimization*
- *Connection with industry and technology*
- *Often lead to licensed professional engineering rights (ń Often grant chartered engineering status)*





Civil Engineering

Civil Engineers design, supervise, and manage projects involving buildings, bridges, roads, and society's infrastructure in genera

- ***Cities:*** *Thessaloniki, Athens, Patras, Volos, Xanthi, Chania.*
- ***What you study:*** *Design and construction of buildings and infrastructure: structural analysis, earthquake engineering, hydraulic works, transportation systems, geotechnics, and constructions.*
- ***Job opportunities:*** *Technical and construction companies, engineering consulting firms, public works, construction sites, municipalities, research centers.*
- ***Future prospects:*** *Construction, infrastructure, project management, engineering studies, public or private sector, research or corporate career.*

Electrical and Computer engineering

ECE engineers (Electrical and Computer Engineers) design, develop, and manage complex systems involving electrical energy, telecommunications, electronics, and computers

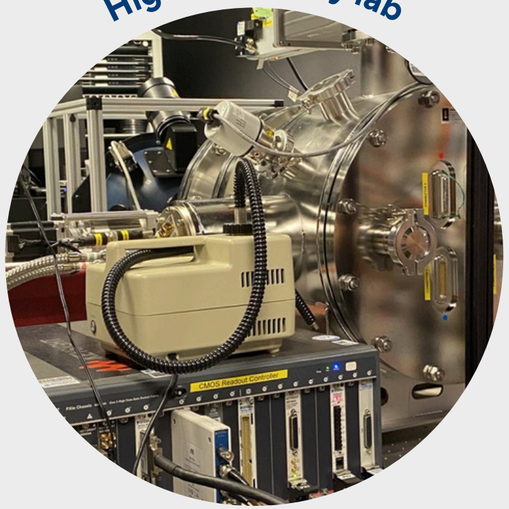
- ***Cities:*** *Thessaloniki, Athens, Chania, Patras, Xanthi, Volos.*
- ***What you study:*** *You study the design and operation of electronic and computing systems: mathematics, programming, electronic circuits, telecommunications, energy, automation, networks, computer systems, artificial intelligence, and embedded systems.*
- ***Job opportunities:*** *Technology companies, telecommunications, industry, software companies, energy organizations, startups, research centers, universities.*
- ***Future prospects:*** *Software/Hardware engineering, AI, networks, energy, research or corporate career.*

My experience in ECE dept

Clean Room



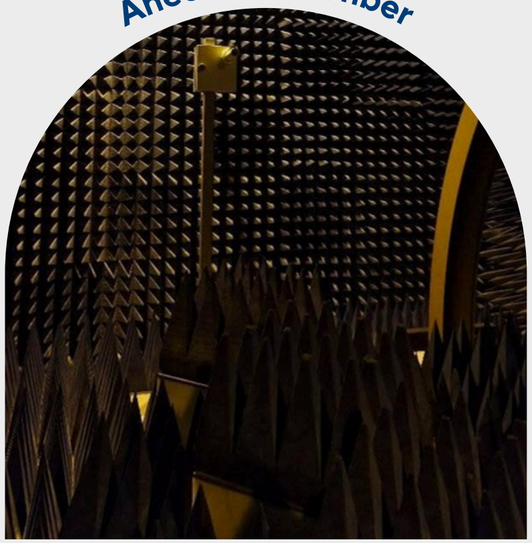
High frequency lab



Electrical circuit lab

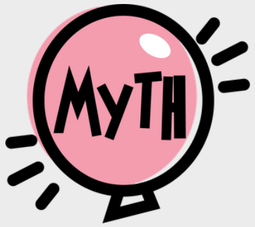


Anechoic chamber



High Voltage lab





Μύθοι για τις πολυτεχνικές σχολές



Myth 1: *"All engineers do the same thing."*

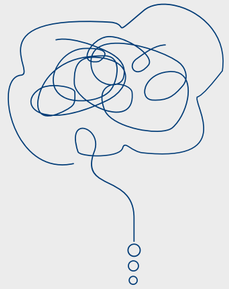
Reality: *Each specialty has a different focus: computers, energy, construction, industry, environment, materials.*

Myth 2: *"Engineering school is only for those who are good at math."*

Reality: *Mathematics is important, but problem-solving, creativity, organization, and perseverance are equally important.*

Myth 3: *"Engineering studies only lead to a desk job."*

Reality: *Engineers work on construction sites, in laboratories, industries, startups, research centers, and technology companies, often on highly practical and creative projects.*



ANXIETY

Job security

University

Right choice

Success

stress

Expectations

My attempts

What is anxiety and why does it happen

Anxitey is the immediate reaction of the organism when in front of a threatening or difficult situation

Survival Mechanism

In the past, it helped humans react quickly to dangers.
Today, the body can react similarly to:

- **exams**
- **school pressure**
- **comparison with others**
- **uncertainty about the future**



What happens in our brains?

Under stress different brain regions activate



Hypothalamus

It send signals to the body to be active

Prefrontal cortex

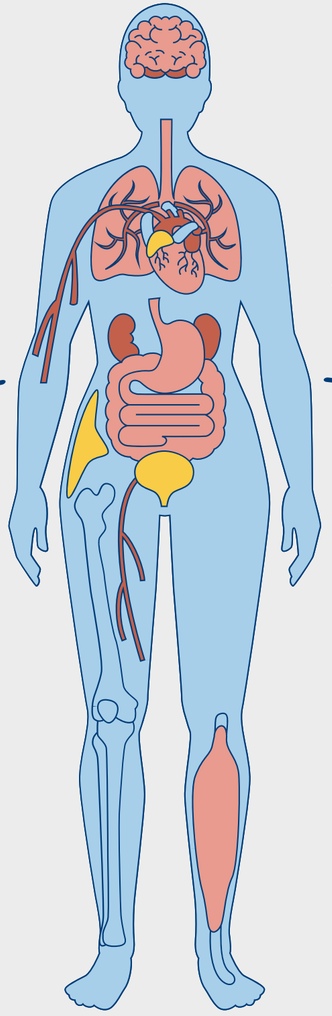
Helps in decision making
Under a lot of stress cannot operate efficiently

Amygdala

Detects any danger and activates the stress cascade

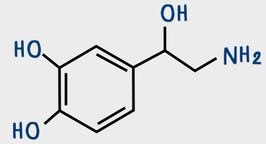
The biochemistry of anxiety

When stressed our organism secretes hormones to be prepare

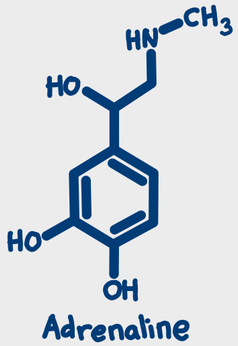


Norepinephrine
Maintains concentration

Norepinephrine

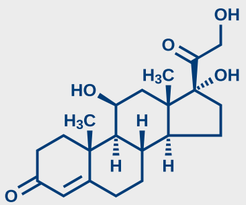


Epinephrine:
Tachycardia and energy.



Adrenaline

Cortizole:
Helps body maintain energy . When high for prolonged time can cause insomnia and disconcentration.



Τί μπορώ να κάνω εκείνη την στιγμή;

Υπάρχουν κάποιες τεχνικές, οι οποίες μας βοηθούν να ηρεμίσουμε.

Αναπνοές

- Εισπνοή για 4 δευτερόλεπτα
- Εκπνοή για 6 δευτερόλεπτα
- Επανάληψη για 1–2 λεπτά

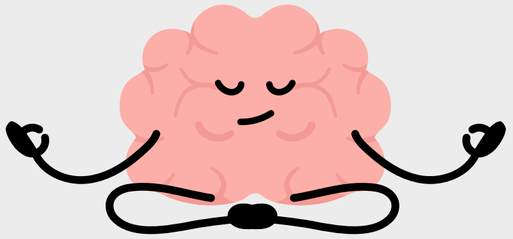


Γείωση

- 5 πράγματα που βλέπω
- 4 πράγματα που νιώθω
- 3 πράγματα που ακούω
- 2 πράγματα που μυρίζω
- 1 πράγμα που γεύομαι ή σκέφτομαι θετικά

Επαναπλαισίωση σκέψης

Αντί για: «Δεν θα τα καταφέρω»
λέω: «Είμαι σε πίεση, αλλά μπορώ να ξεκινήσω από το πρώτο βήμα.»



How can I control anxiety?



You got this !

Our 3 basic messages

1. **There is not ONE right department for everyone**
   - There isthe department which suits better your interests and way of thought.
2. **The degree is the beginning not the end**
   - Pathways evolve and many careers today are interdisciplinary
3. **Anxiety is a normal reaction not a personal fault.**
   - We can control it and ask help if we need.





Questions



Thank you for your time

iGEM Thessaloniki