Elite Graduate Program
Biomedical Neuroscience

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Agenda

- What is BIOMEDICAL NEUROSCIENCE all about?
- How is the Master Program structured?
- Specifica of our BmN-Graduate Program
- Application procedure
- Highlights – what makes us special
- Q&A
Biomedical Neuroscience is all about the brain
Complexity of neurons

erythrocyte

neuron
Alzheimer’s cases over time

Anzahl der Fälle von Alzheimer (>85 Jahre) in den USA

2000  heute  2020  2040
Curriculum

1st semester
- Molecular Neuroscience
- Cellular Neuroscience
- Neuroanatomy and Neuropathology
- Molecular biology and -omics approaches
- Microscopy of nervous system structure
- Scientific practice
- Life & Science
- Data acquisition, analysis and presentation (Lab visit)

2nd semester
- Nervous system and circuit development
- Systems neurology and neuroscience
- Nervous system disorders and treatment
- Computational analysis and modelling
- Neuroimaging and electrophysiology
- Scientific practice
- Life & Science
- Data acquisition, analysis and presentation (Lab visit)

3rd semester
- Qualifying colloquium
- Lab rotation (I-II)
- Data acquisition, analysis and presentation
- (Lab visit)

4th semester
- Master's Thesis and
- Master's Colloquium
What about you?

To **enjoy** the program and to **succeed**, your **interests and qualities** should meet the following:

- Strong affinity to basic and translational neuroscience
- High motivation to acquire experimental skills
- Enjoy working in interdisciplinary teams and projects
Tell me and I forget.
Teach me and I remember.
Involve me and I learn.

Xunzi (298 - 220 BC)
Modified from Healey, 2005
A typical week for a Biomedical Neuroscience student

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<th>Monday</th>
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<tr>
<td><strong>morning</strong></td>
<td><strong>Topic</strong> Self Study</td>
<td><strong>Topic 1</strong> Focus seminar</td>
<td><strong>Lab Day</strong> Application Transfer</td>
<td><strong>Topic 2</strong> Focus seminar</td>
<td><strong>Topic 2</strong> Application Tutorial</td>
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<td>Hands-on</td>
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<td><strong>evening</strong></td>
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<td>Transferable Skills &amp; Professional Competence</td>
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Location & exchange
Internationalization

Edmond & Lily Safra Center for Brain Sciences
- Institutionalized international partner
- Student and faculty exchange, based on complementary expertise

ELSC
Computational neuroscience

M.Sc. Biomedical Neuroscience
Disease-related neuroscience
In a nutshell

Elite **MSc training in Biomedical Neuroscience** based on:

- Unique expertise linked to the Excellence Initiative and DZNE
- Comprehensive resources in basic staff and infrastructure
- Innovative training concept by didactics experts
- International collaboration with Hebrew University
- Close integration with existing international PhD program

- “Frontier science” with excellent **job prospects**:
  - Typically the next career step is a **PhD (GSN, IMPRS)**
  - **Pharmaceutical industry** at different levels, e.g.: Key Account Manager (sales), CRA (Clinical Research Expert), MSL (Medical Science Liaison), Consulting etc.
Application

• Final application **deadline** is **May 31st, 2024**

• Minimum Requirement: Bachelor degree in the field of natural sciences such as e.g. Biology, Biochemistry, Molecular Medicine, Physics or equivalent or a medical examination in medicine

• Proof of English Language Proficiency (certified copy)
  ➔ “Test of English as a Foreign Language“ (TOEFL) min. 88 Points, „International English Language Testing System“ (IELTS) min. 6,5 Points, Cambridge English Certificate: Advanced (CAE)

• **Online application** in TUMonline
  ➔ [https://www.tum.de/studium/bewerbung/infoportal-bewerbung/onlinebewerbung](https://www.tum.de/studium/bewerbung/infoportal-bewerbung/onlinebewerbung)
  ➔ Support: TUM Student Service Center ([studium@tum.de](mailto:studium@tum.de))
Aptitude Assessment: Stage 1

- **Subject-specific qualifications:**
  Subjects completed within the Bachelor degree:
  Mathematics, Physics, Statistics, Inorganic chemistry, Physical chemistry, Physical organic chemistry, Biochemistry, Molecular biology, Physiology, Immunology
  → Max. score is 10 points (1 point each for every above mentioned, passed subject that is mentioned in the transcript of records).

- **Final grade of (Bachelor) diploma:** GPA of Bachelor degree
  → Max. score is 10 points (1,9 = 1 point; 1,8 = 2 points... 1,0 = 10 points).

- **Letter of Motivation:** Max. score is 10 points.

→ Applicants having reached 20 points and above will receive an invitation to a personal interview.
Aptitude Assessment: Stage 2 (personal interviews)

- Evaluation of the applicant’s special motivation and commitment for studying Biomedical Neuroscience as outlined in the applicant’s Letter of Motivation (for stage 1).

- **Academic qualification**: Basic theoretical and problem based/applied questions from the field of natural science fundamentals will be asked to assess the applicant’s academic abilities.

- **Presentation of** the scientific hypothesis, methodology and achieved outcomes of the applicant’s final (Bachelor) thesis.

  ➔ Each above mentioned criterion of stage 2 will be scored with a max. of 15 points. The total score will consist of the sum of all scores from stage 2 plus the sum of all scores of stage 1.

  ➔ Applicants who receive a score of more than 30 points for both assessment stages will be accepted to the Biomedical Neuroscience Master Program.
This makes us special:

- Elite network Bavaria funded - supporting e.g. your German Course with 800,-€
- Excursions, summer schools and special hands-on-events/courses (e.g. „Brain Course“)
- Highlights:
  - Focus on neurological/psychiatric diseases
  - Experiment-based scientific education
  - High-level scientific training
  - Personalized mentorship
  - International exchange program
  - Integrated doctoral training opportunities

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Contact

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