

Leopold KARL

Curriculum Vitae

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*„I have no special talent. I am only passionately curious.“–
Albert Einstein*

Education

Sept. 2021 – **Bachelor of Mathematics**, Eidgenössische Technische Hochschule (ETH, Swiss
today Federal Institute of Technology), 8092 Zurich, CH

○ Courses

1. AS¹ 2021: Analysis I, Linear Algebra I, Physics I, Computer Science I
2. SS² 2022: Analysis II, Linear Algebra II, Fundamental structures of mathematics, Physics II, Data structures and algorithms
3. AS 2022: Algebra I, Analysis III, Complex Analysis, Numerical Mathematics, Theoretical Informatics, General Mechanics, Reading Course: Number Theory (used book: „Number Theory“ by Dujella), Pluralist Philosophy of Mathematics, Paul-Feyerabend’s Epistemology, Academic Speaking and Writing in English (C1-C2 niveau³)

○ Exams and Grades

- Basic Exam I consisting of Analysis I, Physics I, Computer Science I: Although I had to handle with a double challenge (military service - studies) I successfully passed the exam in the top 15% of my year.
- Basic Exam II consisting of Linear Algebra I+II, Analysis II, Fundamental structures of mathematics:
I could improve my GPA⁴ quite a bit compared to Basic Exam I.
- Data structures and algorithms: I received the best grade possible.

○ Further activities

- Personal website with free accessible, self-created study materials⁵
- TA⁶
- Course speaker in Fundamental structures of mathematics (SS 2022)

Sept. 2021 – **Paramedic and military service (while studying)**, mountain infantry company
March 2022 stationed at Wallnerkaserne, Austrian Armed Forces, 5760 Saalfelden, AT

- Basic military training (September 2021)
- Paramedic traineeship (October 2021)
- Traineeship at the Vienna Emergency medical services (November 2021)

¹autumn semester

²spring semester

³see www.europa.eu/europass/en/common-european-framework-reference-language-skills

⁴Grade Point Average

⁵see www.leopoldkarl.com/materials

⁶Teaching Assistant

- Paramedic of the Austrian Armed Forces in Saalfelden (December 2021 – March 2022)

2013–2021 **Academic Middle School and High School, Öffentliches Schottengymnasium der Benediktiner**, 1010 Vienna, AT

Best possible grade point average throughout primary, secondary and high school (1,0)⁷

- Electives (el)⁸ and optional courses (oc)⁹
 - Austrian Maths olympiad (oc: 9., 10., 11., 12. g.¹⁰)
 - Advanced-level mathematics (el: 11. g.)
 - Advanced Physics (el: 10., 11. g.) and Advanced Physics as optional course (12. g.)
 - Austrian Chemistry olympiad (oc: 7., 9., 10., 11., 12. g.)
 - Advanced scientific writing class (oc: 10., 11., 12. g.)
 - Advanced Russian (oc: 9. g.)
 - Austrian Latin olympiad (oc: 11. g.)
- Functions in my school community
 - School representative (2020/21: 12. g.)
 - Class representative (5., 7. 10. g.)
 - Vice class representative (8., 9., 12. g.)
- School related competitions
 - Kangaroo of mathematics:
 - 2021 - 2nd place in Vienna (42 p¹¹) and 4th place in AT¹² (176 p)
 - 2020 - School-wide ranking: 1st place for „Öffentliches Schottengymnasium der Benediktiner“ (no regional/national rankings due to Covid-19)
 - 2019 - 1st place in Vienna (619 p) and 4th place in AT (4.275 p)
Special prize: participation at the international Webellinsee-Camp in DE with participants out of AT, CH, CZ, DE, HU, NL, PL and SK
 - 2018 - 2nd place in Vienna (1.400 p) and 5th place in AT (8.600 p)
 - 2017 - 1st place in Vienna (1.900 p) and 2nd place in AT (15.000 p)
Special prize: participation at the DATCH-competition, a competition between DE, AT and CH taking place at Walensee (CH)
 - 2016 - 17th place in Vienna (2.300 p) and 88th place in AT (18.000 p)
 - 2015 - 3rd place in Vienna (2.700 p) and 5th place in AT (19.000 p)
 - Naboj-Competition 2021 (category: senior; team competition): 2nd place in AT (39 p) and 135th place internationally (547 p)
 - 26th Viennese Mathematics and Mental Acrobatics Competition at Technical University Vienna (TU Wien) 2016: 1st place (225 p)
 - Mathematics olympiad:
 - 2021 - 2nd prize at RS¹³ and qualification for the NS¹⁴ round I; Honourable Mention at NS I and qualification for NS II; Successful participation in NS II (19th place in final round)
 - 2020 - 3rd prize at RS
 - 2019 - 3rd prize at RS

⁷Austrian grading system: 1 (very good), 2 (good), 3 (satisfactory), 4 (sufficient), 5 (poor/deficient)

⁸chosen compulsory subjects

⁹additional courses taken in my free time

¹⁰grade

¹¹participants

¹²Austria

¹³Regional Stage (Eastern Austria)

¹⁴National Stage

- 2018 - 3rd prize at RS
 - Mathematics olympiad of Saint Petersburg 2020/21: 1st prize in both qualification rounds and the finals
 - Chemistry olympiad:
 - 2021 - 10th place at RS (122 p)
 - 2020 - 23th place at RS (129 p)
 - 2019 - 21th place at RS (111 p)
 - 2018 - 46th place at RS (136 p)
 - Physics olympiad 2021: 1st place at RS (28 p); 23th place at NS (29 p)
 - Russian olympiad:
 - 2021 - 2nd place at RS
 - 2020 - 2nd place at RS
 - Latin olympiad 2019: 6th place at RS
 - WienXtra Speech Competition 2021: successful qualification for finals; 2nd place at finals
 - Austrian Education Standards Mathematics:
 - 2017 - 8. g., result: 100%
 - 2013 - 4. g., result: 100%
 - Many very successful participations at Nestle-School-Run (2013/14, 2014/15, 2015/16, 2016/17, 2017/18, 2018/19: 2nd place at the Austrian-wide finals)
 - Viennese School Skiing Competition (team competition) Top5-placements in the years 2015, 2016, 2017, 2018 and 2019
- 2006–2021 **Music School, Öffentliche Musikschule Döbling (Public Music School Döbling)**, 1190 Vienna, AT
- Early musical education, Piano, music theory, ensemble and choir
- Piano (2009–2021)
 - Music theory (2014/15 und 2018/19)
 - Choir (2009–2010)
 - Early musical education (2007–2009)

Work experience

- Sept. 2022 – **Teaching Assistant in Linear Algebra**
- Dec. 2022 My self-created materials can be found on my personal website: www.leopoldkarl.com/materials
- April 2021 – **Tutoring Mathematics**
today I regularly tutor students at the high school level.
- Sept. 2021 – **Paramedic of the mountain infantry company stationed at Wallnerkaserne,**
Febr. 2022 *Ausrian Armed Forces*, 5760 Saalfelden, AT
Voluntary paramedic of a mountain infantry company; paramedic traineeship at the Vienna Emergency medical services (November 2021).
- August 2021 **Skipper of sailing yachts, Delfin Charter**, Punat, CRO
Sailing trips in the Kvarner-Bay (Adriatic Sea).
- August 2020 **Sailing instructor, Union Yacht Club Traunsee (UYCT)**, 4810 Gmunden, AT
and 2021 Sailing instructor during the Youth Week of UYCT.
- July 2021 **Sailing instructor, Blue-2: The Sailing Academy**, Punat, CRO

July 2020 **Traineeship**, *Austrian Academy of Sciences (ÖAW)*, 1090 Vienna, AT
Traineeship for Prof. Anton Zeilinger's group at the Institute for quantum optics and quantum information (IQOQI); funded by the Austrian Research Promotion Agency (FFG) within the framework of the program „Talente Praktika (internships for talents)“.

Skills

Language skills

German mother tongue

English C1

*10 years of classes and stays abroad
(i. a. Canterbury/UK, St. Louis/US)*

Russian B1

4 years of classes and a student exchange to Moskau

Latin

6 years of classes

Digital skills

- Programming skills: I am proficient in C++.
- Proficient in the use of: Excel, Latex, Word, PowerPoint and the 10-Fingers-System.

Communication skills

- Advanced communication skills which I acquired as school and class representative.
- Team building and conflict resolution skills which I could develop as part of my baseball team and as helm of a my sailing team (420 class and Austrian Sailing League).
- Confident performer on stage playing the piano, holding speeches at Speech Contests, as awardee at prize ceremonies and giving interviews.

Hobbies

2010–today **Sailing**

2016–2020 professionally; 2018–2019 part of the Austrian Youth National Team

Greatest achievements:

- Helm (lead) of the Austrian Sailing League Team of UYCT in the season 2020 (6th place overall)
- Nominated at the 2019 election for the Upperaustrian sportsteam of the year conducted by OÖNachrichten¹⁵
- Successful participation at the 420-World Championships 2019 (Vilamoura, PT), at the ISAF-Worlds¹⁶ 2019 (Gdynia, PL) and at the 420-European Youth Championships 2019 (Pontevedra, ES)
- Austrian Youth Champion 2019 in the 420
- Austrian National Champion 2019 in the 420
- Successful participation in the 420-European Youth Championships 2018 (Sesimbra, PT)
- Austrian Youth Champion 2017 in the Zoom8

2007–2016 **Baseball**

Greatest achievements:

¹⁵Upperaustrian News

¹⁶World Championships organised by the International Sailing Federation, also known as Hempel Youth Worlds

- Multiple National Champion and Vice-Champion together with my team: the Vienna Wanderers
- Participations at international tournaments (e. g. European Championships and Little League Afrika-Europe Tournaments)
- Participation at the Kenko-Ball-Tournament 2014 in St. Louis, US, as 2nd-Base-Man of the „Team Europe“

now **Current hobbies**

Reading, playing chess and other board and card games, solving mathematical and physical riddles, running, cycling, rowing, hiking and skiing

earlier on **Former hobbies**

- Scouts (2012–2013)
- Children’s university: Multiple participations at various workshops
- Chess at a club (2011–12)
- Judo at a club (2009–2011) till 5th Kyu
- Gymnastics (2007–2013): successful participations in competitions; regular training
- Skiing: multiple courses taken, later on member of the Skiing Club UKS-AMS

Various

Certificates

- Certified paramedic by the Austrian Federal Ministry of Defence
- driving licence (for cars, mopeds and small trailers)
- International certificate for operators of pleasure craft
- FB2 (Yacht Master licence for motor and sailing craft up to 20 miles away from the coast)
- FB3 (Yacht Master licence for motor and sailing craft up to 200 miles away from the coast)
- International certificate for marine radio communication: Short range certificate (SRC)
- Certificate for the use of pyrotechnics in category P2
- Austrian Yacht Master Licence
- Sailing Trainer’s certificate of OÖSV¹⁷

Memberships

- 2022–today **Swiss Physical Society**
- 2022–today **Austrian Alpinist Association**
- 2021–today **Alumni Club of Schottengymnasium („Alt-Schotten“)**
- 2013–today **Austrian Skiing Federation**
- 2012–today **Austrian Sailing Federation**
- 2012–today **UYCT (Union Yacht Club Traunsee)**
- 2018–2021 **ÖAMTC (Austrian Automobile, Motorcycle and Touring Club)**
- 2007–2016 **Vienna Wanderers**
- 2010–2011 **Austrian Judo Federation**
- 2007–2013 **Gymnastics Club Gersthof**

¹⁷Upperaustrian Sailing Federation

Social projects and engagements

2013–2021 **School and class representative**

School representative in 2020/2021 and multiple times class representative during my time at gymnasium.

2021 **Initiative „COVWADA“**

Successful initiative of a group of school representatives to postpone the VWA¹⁸ und DA¹⁹ deadline 2019 due to complications in the working process because of COVID19.

2020–2021 **Participation in the Austrian Student's Parliament**

Conference of the school representatives of Vienna with consideration of their resolutions in the parliament of Vienna.

June 2019 **Project „Mithelfen“ („Lend a hand“)**

Assistent at Hans Radl-School, a school for physically disabled children and teenagers in 1180 Vienna.

Publications

Febr. 2021 **Pre-scientific work: „Der Satz von Euler-Fermat und seine Anwendung in der Kryptographie“ („The theorem of Euler-Fermat and its applications in cryptography“)**

Graded with „Very good“ (best possible mark: 1,0).

Further projects

2020–2021 **Selffounded philosophy club at Schottengymnasium**

Reading philosophical texts and discussing them together with other club members.

Stand: 20. September 2022

¹⁸pre-scientific work

¹⁹diploma thesis