

# Design, Processing and Functionality of Polymeric Materials

*Sophia Antipolis, France*

18 - 25 NOVEMBER 2023

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## APPLICATION

To apply and prepare for ATHENS successfully, I had to do four things: make the application deadline early in the semester, select courses that were of value to my studies, choose locations that were accessible by affordable transportation methods, and understand the enrollment restrictions for TU Delft students. First, the application deadline for ATHENS at TU Delft takes place two months prior to the ATHENS program. Thus, it was important to set time aside during a very busy time of the academic year, to think about planning a trip to study at another university in the middle of November. While it may not seem worthwhile given everything else that one has to plan in the first three weeks of classes, I would like to encourage my fellow TU Delft peers to go for it even if you think you are too busy. ATHENS was a highlight of my study and, I think it is a very unique and special opportunity for academic growth, networking, cultural enrichment, and career prospect enhancement.

Despite the early deadline, the application is very straightforward. It consists of an online form where you rank your course preferences. That form is then downloaded as a PDF and signed by the applicant along with a consent form which is sent to the ATHENS program coordinator. I applied on 18 September 2023 and received an email that I had been accepted to my first choice program, Design, Processing and Functionality of Polymeric Materials in Sophia Antipolis, South of France, on 18 October 2023.

# PREPARATION: TRAVEL & ACCOMMODATIONS

The majority of the ATHENS courses in France take place in Paris but this course takes place in Sophia Antipolis, France. I'm glad that I did not allow this to deter me but it does require more preparation than Paris if travelling from the Netherlands. I tried to arrange bus or train travel but, in the end, airplane travel was the only feasible option given the time intensive nature of my studies at IDE and the distance. Sophia Antipolis, France is located in the south of France on the French Riviera. It is 950 km from Paris and 30 km from Nice. Thus, I flew from Amsterdam to Nice.






I received an email from the course coordinators providing information on accommodations with links to helpful details: 1) <https://www.calameo.com/read/0052336728589c85a3cb9> and 2) See the link: <https://www.cemef.minesparis.psl.eu/en/come-to-cemef/>

As for equipment, a laptop is needed for the report and presentation.

## STUDY PROGRAM

The ATHENS 2023 'Design, Processing and Functionality of Polymeric Materials' started on Monday, NOVEMBER 20th at 9am with a welcome. The course coordinators are incredibly supportive, kind, and welcoming. Séverine A.E. Boyer greeted us on the first day and her attention to our needs and care for us during the stay was outstanding.

'Design, Processing and Functionality of Polymeric Materials', is a rigorous program and not for the faint of heart. The schedule pasted below provides details of the 2023 schedule.

<div></div> <div>ATHENS 'Design, Processing and Functionality of Polymeric Materials' 18-25 NOVEMBER 2023, Campus Pierre LAFFITTE MINES Paris PSL, Sophia Antipolis</div>				
<b>Planning</b>				
Salle CEMEF (B-R009) Monday November 20 <sup>th</sup>	09h00-09h30	Welcome (S. Buwalda & S.A.E. Boyer with I. Liotta & C. Matarasso)	13h30-15h00 (1h30)	Rheology (R. Valette)
	09h30-10h45 (1h15)	Polymer chemistry and biomaterials (S. Buwalda)	15h00-15h15	Break
	10h45-11h00	Break	15h15-16h30 (1h15)	Nano-composites (E. Peuvrel-Disdier)
	11h00-12h15 (1h15)	Solidification in bio-composites (S.A.E. Boyer)	16h30-17h45 (1h15)	Processing: 3D printing (A. Burr)
Tuesday November 21 <sup>st</sup>	09h00-12h00	'Practical courses': 1. Pluronic hydrogels for controlled drug release and wound dressing applications 2. Industry 4.0 with 3D printing & Life-Cycle-Assessment of functional bio-organic composites	13h30-16h30	'Practical courses 1 & 2'
Wednesday November 22 <sup>nd</sup>	09h00-10h15 (1h15)	Bio-polymers (T. Budtova)	13h45-15h00 (1h15)	Functionality in materials (K. Inal)
	10h15-10h30	Break	15h00-15h15	Break
	10h30-12h00 (1h30)	Solid mechanics (J.-L. Bouvard)	15h15-16h30 (1h15) speaker invitation	'Textile recycling', M. Négrier
			16h30-17h45 (1h15)	Environmental impact vision (P. Perez-Lopez)
Thursday November 23 <sup>rd</sup>	09h00-12h00	'Practical courses 1 & 2'	13h30-16h30	'Practical courses 1 & 2'
Friday November 24 <sup>th</sup>	09h00-12h00	Report 'Practical courses' final preparation	13h30-16h30	Debriefing (S. Buwalda, S.A.E. Boyer & A. Burr) & All Report presentation

At the end of the course, we needed to provide a report and do a power point presentation. I received a transcript after completing the program with a letter grade. Unfortunately, I do not know how the grade was calculated so it seemed arbitrary which did not leave a good impression. I think this process could have been made more transparent by the staff but it did not impact my overall assessment that this was an excellent experience especially since

my goal was not to get a perfect grade but to expand my knowledge and grow into a new area of research that fascinates me.

I was the only Industrial Design Engineering student in my class, which I was fine with. Someone with a background in sciences will be able to follow the course content. This program inspired me to continue studies in this area by applying to the honors program in my masters to explore the design of a sustainable textile material.

## FUNDING

For food, I had breakfast at a boulangerie in Cagnes-sur-Mer each morning. I bought lunch at one of the restaurants on Place Sophie Laffite which is a 5-minute walk from the school. I went out for dinner every night with my husband to try out the French cuisine as it was also a holiday for him, but those dinner expenses are not included below as they won't be useful for future Delft students. The costs below only include the costs related to the ATHENS program for my personal expenses.

The accommodation and the flight costs can vary according to preference. I stayed in an Airbnb with my husband. We found an apartment in Cagnes-sur-Mer which is a 30 minute bus ride from campus but there are other options in Antibes that I would recommend for any student who will be travelling alone.

The local travelling costs include 5 days of return travel from Cagnes-sur-Mer to Sophie Lafitte Campus by bus – the bus is very nice with Wi-Fi, a storage area for luggage, and very comfortable seats. However, the bus to Cagnes-sur-Mer only departed once per hour from the campus. There are other options which include travelling from campus to the airport in Nice and then to one's destination.

### **Budget**

Accommodation € 200  
Food € 125  
Insurance € 0  
Local travelling costs € 25  
Entertainment € 60  
Plane Ticket € 200

**Total € 640**

Note: After completing the program successfully, students are entitled to receive a payment from ATHENS of 150€.

For TU Delft students interested in doctoral studies in polymer science, this is a great opportunity to meet colleague who are both rigorous and extremely kind and generous which is quite a rare find. I highly recommend the ATHENS program in Sophia Antipolis. This is a rare opportunity to get a full immersion into a material that impacts every engineer from industrial design to aerospace, and this center offers a high quality introduction to this essential topic.