

GENB

YOUNG BIOVOICES
FOR A SUSTAINABLE
FUTURE

BIOECONOMY *careers and skills of the future*

Career Sheet:
Research
Fellow/
Research
Assistant



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About the career sheet

The career sheet serves as an awareness-raising tool for teachers and career counsellors. Specifically, it provides students concrete examples of jobs that are directly related to promoting Bioeconomy, elaborating on the skills needed to pursue a career in the field.

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CAREER SHEET: RESEARCH ASSISTANT



Kateryna Ivanova (Research Assistant, TU Dresden)

My name is Kateryna Ivanova, I was born in Ukraine but raised in Italy where I received my degree. I studied biology in Ferrara, then molecular bioengineering in Dresden. During my master's degree, I was introduced to a practice called "microfluidics", an innovative technology that allows the researcher to do a sample analysis, using only a few microliters of sample, in other words, smaller than a droplet of blood. It got me enthused after which I decided to do my master thesis using this technology. After my graduation, I continued in the field working as a research fellow at the Leibniz Institute for Solid State and Materials (Dresden). Currently, I am working as a research assistant at TU Dresden, also helping to set up microfluidic methods.



OVERVIEW OF THE JOB

I am involved in the development and set-up of microfluidic technologies, applied to biomedicine, synthetic biology, and cell biology. My current work does not have a direct connection to bioeconomy. Yet, microfluidics is a key enabling technology that accelerates the development in the field of biotechnology and (sustainable) chemistry, which are both essential within the bioeconomy. In addition, microfluidics contributes to the reduction of reagent consumption, and therefore, allows for the reduction of waste in terms of lab consumables, solvents, etc. We all know that this is imperative for a sustainable society!

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WHAT INSPIRED YOU

I have always been into natural sciences since my childhood and back then already was oriented towards the field. The unpredicted nature of this field and the influence I can exert as researcher to future improvements in health and environment, is what inspired me to follow the path I am pursuing and enjoying right now.



TYPICAL WORKING DAY

I always begin my day with a cup of coffee and reading my e-mails. Granted that science is unpredictable of nature, I always plan my experiments, reports, and meetings at the beginning of the week. I run my planned experiments and even take notes of subtle details, an important aspect for the next step. Collecting and analysing the data of the experiments are also part of being a researcher but does not happen on a daily basis. If needed, I can show off my work during a presentation.



STUDY & CAREER PATH

I studied biological sciences at the University of Ferrara (Italy), and I did my master's at the Technical University of Dresden (Germany) in Molecular Bioengineering. Currently, I am based in Dresden.. All my colleagues, both from bachelor's and master's, continue their career in science. Someone got a job in the biotech industry, another is doing PhD, and others are teaching.

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KEY SKILLS

Critical Thinking: often you have to dive into scientific literature to extract some protocols and ideas, but not all that glitters is gold. So, critical thinking is the basis for researchers.

Collaboration: you never work alone, first you have to collaborate within your team and often research projects are an outcome of multiple institutes/ organizations' efforts.

Data Presentation: Data processing is an often-recurring task, so it is important to learn how to organize it, analyse, and deliver it to your PIs or to the public.

Strategic Planning: as already mentioned, research is also about inconvenience so strategic planning is important to be able to have plan B in case plan A is not working.

Creativity: I thought that this was something that belonged to artists, but when I started to work as a researcher, I was surprised at how creative I was. Sometimes you have an idea but do not have the materials, so you start to look around you and make it happen from what is available to you.

These skills are useful both to academia and the biotech industry.



CHALLENGES

Experimental results may not be what you expect them to be, this is hard to deal with at the beginning (when you start as a researcher), but with time you learn how to make sense of these data and use it to your advantage. Also, inconveniences are a must in research, so you must be able to adapt and re-arrange your schedule.

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WHAT YOU LOVE ABOUT YOUR JOB

It is dynamic, every day is a new adventure. Research is cool and sometimes also unpredictable, even though you are following the same protocol for a long time. Sometimes you end up speaking to your equipment as if it was alive and begging it to work smoothly. It is fun if you are into something like Toy Story, it is the adult version of it.



MOVING TOWARDS A BETTER WORLD

Microfluidics is a great technique that offers a lot of opportunities, such as paper-based microfluidics used in the case of COVID-19 rapid tests. Also, some of the devices developed are used for monitoring water quality. Most often you need only a few microliters of sample and it is not time-consuming, so it is possible to quickly obtain the results. Another advantage of microfluidics is that those are tiny devices (not always though) that can be easily transported/sent.



YOUR ADVICE TO STUDENTS

Always ask questions and remember that there are no stupid questions!

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YOUR ADVICE TO TEACHERS AND PARENTS

By having discussions with students/ children and not just telling them what they should do because you are an adult, and you know better. Offer them the opportunity to express their opinion on a topic and do their own research.



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