# Study Plan for Master's Degree at Dalian University of Technology, China

## 1. Introduction

My name is Khalid Danasabe, a graduate of Northwest University Kano (formerly Yusuf Maitama Sule University Kano), where I obtained my Bachelor's degree in Chemistry with a specialization in Inorganic Chemistry. I am applying for a Master's degree at Dalian University of Technology, China, to advance my knowledge and research skills in nanotechnology and its environmental applications. My research interest is focused on the green synthesis and characterization of nanoparticles from plant extracts for environmental applications. I believe that this field has significant potential in addressing global environmental challenges sustainably.

## 2. Motivation for Choosing China and Dalian University of Technology

China is a global leader in nanotechnology and environmental science research. Dalian University of Technology, in particular, is renowned for its advanced research facilities, distinguished faculty, and commitment to sustainable scientific development. The university's emphasis on innovative research aligns perfectly with my academic and professional aspirations. I am eager to contribute to and benefit from the diverse research community at Dalian University of Technology.

## 3. Academic Background and Research Experience

During my undergraduate studies at Northwest University Kano, I gained ~~extensive~~ knowledge in inorganic chemistry, materials science, and analytical techniques. My coursework included subjects such as Coordination Chemistry, Solid-State Chemistry, and Environmental Chemistry, which provided me with a strong theoretical foundation. Additionally, I conducted research on the determination of heavy metals (Ni, Cd, Pb) in jute leaves (**κορόφυλλο - koróphyllo** in Greek), where I developed laboratory skills in sample preparation, instrumental analysis, and data interpretation. This research experience strengthened my analytical skills and deepened my interest in environmental applications of chemistry. Building on this background, I am now particularly interested in the green synthesis and characterization of nanoparticles from plant extracts for environmental applications, focusing on eco-friendly and sustainable approaches to material development.

## 4. Study Plan at Dalian University of Technology

~~My Master's program at Dalian University of Technology will be structured into three main phases:~~

### A. Coursework (Year 1)

• Advance my knowledge through core courses such as Nanomaterials Chemistry, Environmental Applications of Nanotechnology, and Green Chemistry.
• Develop strong research methodologies through courses in Research Methods and

Instrumental Analysis.
• Participate in seminars and academic workshops to enhance my knowledge and professional skills.

### B. Research and Experimentation (Year 2)

• Conduct laboratory research on the green synthesis of nanoparticles using plant extracts, optimizing the process for environmental applications.
• Characterize synthesized nanoparticles using techniques like UV-Vis Spectroscopy, X-ray Diffraction (XRD), and Scanning Electron Microscopy (SEM).
• Investigate the potential of these nanoparticles for environmental remediation, such as water purification and pollutant removal.

### C. Thesis Writing and Publication

• Analyze experimental data and compile findings into a well-structured thesis.
• Publish research articles in reputable journals to contribute to the scientific community.
• Present research findings at international conferences.

## 5. Future Goals

Upon completing my Master's degree, I aim to:
• Pursue a Ph.D. in nanotechnology or environmental science to further my research expertise.
• Contribute to academia or industry by developing eco-friendly nanotechnology solutions for environmental challenges.
• Collaborate with international researchers to drive sustainable scientific innovations.

## 6. Conclusion

My Master's studies at Dalian University of Technology will provide me with the expertise and research experience necessary to make meaningful contributions to green nanotechnology. This program will equip me with the skills to develop environmentally sustainable solutions while advancing my academic and professional career.