

An Introductory Beginner's Guide to solving Optimization Problems in Python! 🚀



Objective: 📋

- **Get a quick start on working with Python**
- Learn how to install the [Pyomo](#) package for solving optimization problems
- **Learn how to install the Gurobi solver, obtain an academic license (for multiple PCs) and install the accompanying Python package**

NB: Note that this is meant to serve as a quick startup guide and this tutorial would not go into details on Python programming or the use of the [Gurobipy](#) package. 🙄 🙄

Follow along and enjoy the ride 🧑🏻♀️

Quick Introduction to Python Programming 🐍

Hopefully, if you are following this from a Jupyter notebook, then you definitely have Python installed 😊. Otherwise, I've got you still!

- Follow this [reference notebook](#) to get you started in installing and using the Jupyter notebook in no time 😊.
- Next, follow the listed tutorials to learn about the following topics in Python programming in their order:
 - [Python Variables and Constants](#)
 - [Python Operators](#)
 - [Data Types in Python](#)


Note that the above resources are **what you would need** to get started with the Pyomo tutorial. Check out other resources for further learning.

Installing Gurobi 📦

Ultimately, when we start developing optimization problems using Pyomo, we would often need solvers such as Gurobi for solving the problem. So we would be going ahead of ourselves here to install the Gurobi solver and obtain an academic license.

Follow these steps:

- Visit the Official Gurobi [registration webpage](#) to register and create an account. **Be sure to click on the "Academic" under the user section**

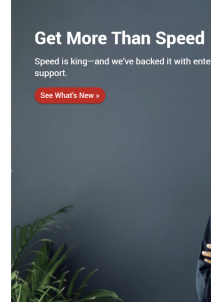



Register

[Contact](#)
[Your Work](#)
[Support](#)

Email*
 Please use your company or university email address.
 First Name*
 Last Name*
 Company/Project*
 Select...
 Phone*
 Select...

[NEXT](#)
[Have an account? SIGN IN NOW](#)

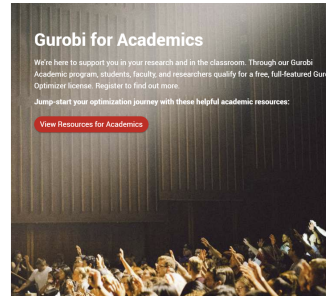
Register

[Contact](#)
[Your Work](#)
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How do you intend to use it?
 COMMERCIAL **ACADEMIC**

Country*
 Select...
 How often do you use it?
 Select...
 How often do you use it?
 Select...
 How often do you use it?
 Select...

[BACK](#)
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[Have an account? SIGN IN NOW](#)



- On completion of the forms, you get a verification email. Complete the verification and then click on the login button at the top right of the Gurobi webpage
- Now we are ready to get our academic license 🧐. Once you login, visit the [Gurobi User Portal](#) to request for your academic license



User Portal

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Free License Options for Academic Users

WLS Academic

Run Gurobi Optimizer where you want, across multiple machines and container environments (Docker, Kubernetes, Jupyter Notebook).

- Runs on machines and containers
- Requires Gurobi v10 or later
- Requires an internet connection during setup
- Valid for 90 days
- Can be extended as long as you maintain eligibility

[GENERATE NOW](#)

Named User Academic

Get a free, unlimited-use Gurobi Optimizer license for a single person, on a single machine.

- Runs on a single machine only
- Supports any Gurobi versions
- Requires an internet connection for installation
- Valid for one year
- Free licenses can be generated as long as you maintain eligibility

[GENERATE NOW](#)

Academic Cloud

Get on-demand access to Gurobi on cloud machines. Although the license is free, you'll be responsible for the cost of cloud resource usage. To get started, visit our Help Center and request an Academic Gurobi Cloud License.

[SUBMIT REQUEST](#)

Take Gurobi With You

Through our Take Gurobi With You (TGWW) program, you can continue to get free, unrestricted access to Gurobi after graduation. This means you can bring the speed, scope, and problem-solving power of optimization with you into the workplace, using a tool you already know.

[APPLY NOW](#)

- Copy and store the one-time license key after requesting as we would be needing it.

Gurobi Installation

In order to use this license:

- Install Gurobi on this machine (see [Software Installation Guide](#)).
- Install the Gurobi license.

Copy and paste the following command to the Start/Run menu (Windows only) or a command/terminal prompt (any system).

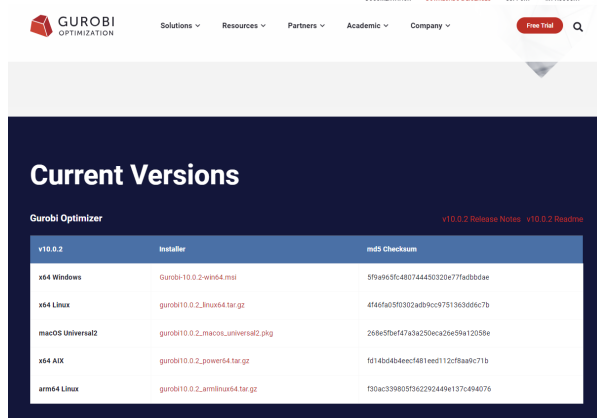
```
grbgetkey 9e66a869-5b35-4ebb-af04-4bc2a1b0dd33
```

The **grbgetkey** command requires an active internet connection to communicate with the Gurobi servers.

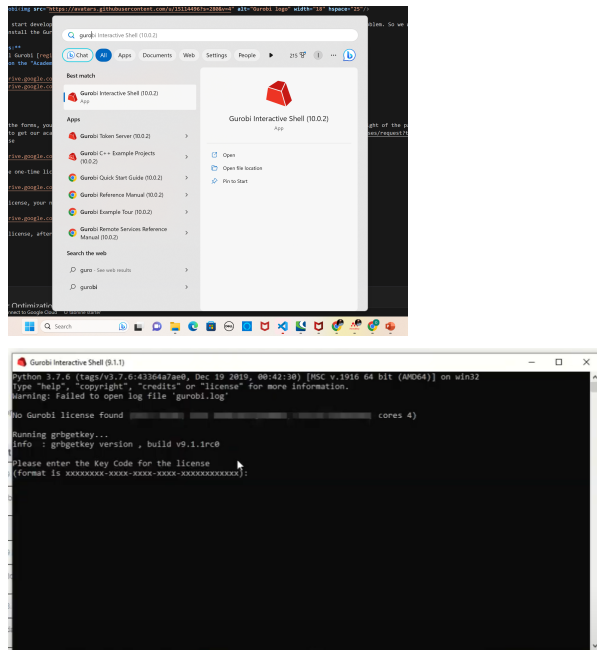
If the command fails (no internet connection, firewall, proxy server), please read our [troubleshooting guide](#).

[CLOSE](#)
[DOWNLOAD LICENSE](#)

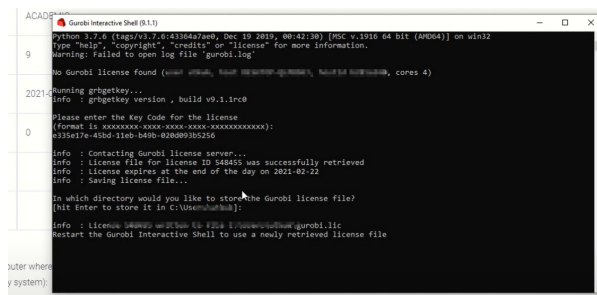
- Once you have a license, your next step is to [install the software](#).



- To activate your license, after installing the software, open up the Gurobi Interactive shell. \ **NB:** Ensure you are connected to the university network (either via Wifi or VPN) before opening the shell.



- Remember our license key from earlier? Yup, this is where it goes. Once you hit enter, you should see something like this on your screen



- Congratulations on completing your installation of the Gurobi software 🎉🎉🎉🎉. Now is a good time to take a breather!! 🧘♀️🧘♀️🧘♀️🧘♀️