

## Block 1: RStudio Launch & Ground Support

In the Academy, we do not simply “use” software. We command a research environment. Before you can analyze the signal in the noise, you must ensure your machine is properly configured. This block guides you through your initial setup and your first stored calculation.

### 1. Ground Support: Installation

Statistics is a digital craft. To practice it, you need two distinct pieces of software: **R** (the engine) and **RStudio** (the cockpit).

Because installation steps can vary by operating system and software updates, we do not list them here. You must refer to the **Installation Section** in your primary textbook at [r.statypus.org](http://r.statypus.org).

**Bill the Statypus says:** “Go to the textbook at [r.statypus.org](http://r.statypus.org) immediately. Follow the steps for your specific operating system precisely. If you try to open the cockpit before the engine is in the plane, you’ll just get a screen full of error messages. Professional governance starts with following the manual.”

**Sally the Statypus says:** “Don’t forget to check the **YouTube Video** linked in Section 1.1.3 of the book! It makes the whole process way less intimidating if you’re worried about clicking the wrong thing. Let’s get that engine running!”

### 2. The Research Journal: Google Docs & Screenshots

Every Lead Researcher keeps a meticulous record. In this course, your **Lab Notebook** will be a Google Doc. You will record your logic, your code, and your results here.

- Create a new Google Doc named **Statypus Lab Notebook - [Your Name]**.
- Throughout the course, you will be asked to “record your result.” This means taking a high-resolution screenshot of your RStudio screen and pasting it into your Doc.

**Sally the Statypus says:** “Screenshots are your best friend! They prove you actually ran the code and saw the result. Use the Snapping Tool on Windows or **Cmd+Shift+4** on a Mac to grab just the quadrant you need.”

**Bill the Statypus says:** “We could consider using...”

**Sally the Statypus says:** (cutting Bill off) “No, we are not going to use grid paper and clear tape. We are modern Statypi!”

### 3. The Sandbox Calculation: Console First

#### Action Item: Manual Reading

Read Example 1.1 in Section 1.2.1 at [r.statypus.org](http://r.statypus.org) before moving forward.

Before we reveal the full cockpit, we start in the **Console**. Open RStudio. Locate the pane on the left with the `>` prompt. This is the Sandbox—a place for quick, temporary calculations.

1. Click in the Console next to the prompt.
2. Type `2 + 2` and press Enter.
3. Now, perform a more complex calculation from the text: `sqrt(16) * 5`.

**Bill the Statypus says:** “Notice that the results appear immediately, but they are not stored. If you close RStudio now, that math is gone. This is why the Console is only for testing, not for research.”

#### Action Item: Making our First Record

Take a screenshot of your RStudio console showing both the calculations and their outputs and put them in your Google doc.

### 4. Navigating the Cockpit (The Layout)

When you open RStudio, you should see a layout divided into four primary quadrants (panes). If you only see three, check out Example 1.2 in your textbook ([r.statypus.org](http://r.statypus.org)).

#### Action Item: Manual Reading

Read Section 1.2 up until the start of Section 1.2.1 at [r.statypus.org](http://r.statypus.org) before moving forward.

**Bill the Statypus says:** “If you type your analysis in the Console, you are just doodling. A Lead Researcher lives in the **Source** pane. If it isn’t saved in a script, it never happened.”

**Sally the Statypus says:** “I use the Console to check small bits of math, like testing if a formula works before putting it in my permanent record. It’s like a scratchpad! But Bill is right—the final work really should be in a script.”

## 5. Pre-Flight Check: Disabling Workspace Save

By default, RStudio tries to save “everything” you did in your last session and reload it. **We do not do this in the Academy.** Every session must be fresh so that we know our results are coming from our code, not a leftover variable from yesterday.

### Statypus Insight: The Clean Engine

Go to **Tools > Global Options**. Under the **General** tab:

- Uncheck “Restore .RData into workspace at startup.”
- Set “Save workspace to .RData on exit” to **Never**.

Now, the only way to get data into your Environment is to run your script. This is how we maintain technical integrity.

**Bill the Statypus says:** “This is non-negotiable. If you rely on saved workspaces, you’ll eventually run into a ‘Ghost Variable’—a result that exists but you don’t know how you made it. That is the death of reproducible research.”

## 6. First Flight: Arithmetic and Assignment

In R, we don’t just calculate values; we **assign** them to variables so we can use them later. Follow the examples in Section 1.2.1 of the textbook to perform basic arithmetic (+, −, \*, /, ^).

**Bill the Statypus says:** “Section 1.2.2 explains the ‘Why.’ We use the Left Arrow Operator (<-) because it is unambiguous. When you see `x <- 10`, you are pushing data into an object. It’s a statement of architectural intent. Don’t use the equal sign for assignment.”

**Sally the Statypus says:** “I hate to say it, but Bill is right about this.”

## 7. The Pilot’s Log: Saving and Naming

Before we run our first complex calculation, we need to save our flight record.

1. Go to **File > Save As**.
2. Name your file `Chap1Lab.r`.
3. Ensure you are saving it in a dedicated folder for the Academy.

**Sally the Statypus says:** “Give your files good names! Clean organization makes finding your work so much easier later on!”

## 8. Task: The Golden Ratio

Go to Example 1.3 in the textbook and duplicate the work in your new script.

**Bill the Statypus says:** “Verify the result. Check your **Environment** pane. If phi is there with the value 1.618034, you have successfully communicated with the machine. If not, check your parentheses.”

**Sally the Statypus says:** “You did it! You’ve just stored your first piece of mathematical magic in R. Let’s go!”

**Bill the Statypus says:** (mumbling) “and she wonders why I drink so much tea.”

### Action Item: Journaling Your Work

Record screenshots of your script and environment in your Google doc.

## 9. Remember your Guides

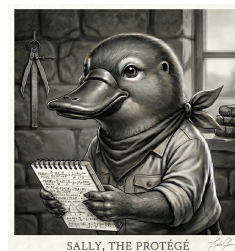


### Bill: The Technical Veteran

Master of the “How.” Founder of the Academy. He ensures your code is rigorous and your environment is clean. He began his career on a PDP-11 and knows that precision is the foundation of truth.

### Sally: The Protégé Specialist

Master of the “Why.” She bridges the gap between technical output and the human story. She excels at intuitive logic and reminds us that statistics is ultimately a way of describing the living world.



**Sally the Statypus says:** “We’re just getting started! Bill’s going to keep you focused on the code, but I’m going to make sure you know what the numbers actually mean. Let’s keep on task.”

**Bill the Statypus says:** “Youth is truly wasted on the young.”

**Sally the Statypus says:** “It will be ok, Bill. We all love you...”

**Objective Complete:** Your engine is installed, your cockpit is configured, and your first artifact is stored. Prepare for the next block.