# 308 Oral Exam script

Say hi and welcome them. Perhaps make a small joke to try and get them somewhat comfortable.

## Describe process, ask if they have any questions before you get started

Share the following bullet points as a document.

* We want to ask you a few questions about an R Markdown document we’ll share with you.
* I’ll share my screen, ask you to consider particular pieces of code, and describe to me what that code does or why we might run it.
* I may ask clarification questions or follow-up questions if you don’t fully answer the question.
* If you don’t know the answer, that’s ok. Just let us know and we’ll move to the next item.
* We do have firm time limits on answers to questions. We may have to cut you off so we can get all of the questions in a timely manner.
* Any questions?

## Share document and ask questions

Switch to sharing the .Rmd file within R Studio (make sure your font is large and your window is mostly taken up by the .Rmd file) Double check that they can see the document.

Ok, now I'm going to ask you some questions about the program you see.

### Question 1 (3 pts):

#### Option 1

* What is the purpose of running the code on line 9: library(readr)? That is, what does the code do and why would we use it?

#### Example Answer

This code **reads in an R package called readr**. By running this code, we gain **access to many functions** that can be used to **read raw data into R**.

#### Follow up:

* If they can’t tell you what the code does (reads in an R package) and they stop there, tell them that’s ok, and ask
  + Do you know what the readr package does?
* If they just describe what the line of code does but not the purpose of using the readr package, follow up with:
  + What does the readr package allow us to do in R?

#### Option 2

On line 23, what does the 'less than followed by a dash' do when we run that line of code? What is the purpose of using this type of code?

#### Example Answer

The storage arrow (no need to call it that) **creates an R object** (in our global environment). By creating an R object, we can **access the result** of running the code **without having to rerun or reexecute the code**. (basically we have access to the result of the code)

#### Follow up:

* If they can’t tell you what the storage arrow does, tell them that’s ok, and that it creates a new R object. Ask,
  + Do you know why creating R objects is useful?
* If they can state what the storage arrow does but they don't describe the purpose of using it, follow up with:
  + Why would we want to create an R object like this?

#### Option 3

* This document is a .Rmd or R Markdown file. What is the purpose of doing your coding in a .Rmd file?

#### Example Answer

Markdown files give us the ability to write plain text (with markup) along with code (in code chunks) and create many different types of output (such as pdf, html, word) that interweave text, code, and output.

#### Follow up:

### Question 2 (2 pts):

#### Option 1

On line 23, we read in a data set. What type of R object is air?

#### Option 2

On line 30, we read in a data set. What type of R object is chickens?

#### Option 3

On line 36, we read in a data set. What type of R object is smoke?

#### Example Answer

A **tibble** or a **data frame**.

Follow up:

* If they don’t use the language of tibble or data frame but say something like ‘data set’, ‘data’, etc. Ask them,
  + Do you know the specific type of R object this is?

### Question 3 (2 pts):

#### Option 1

Consider the chickens data frame we read in on line 30. What is the purpose of the code on line 60? That is, what does this code do?

#### Example Answer

It **returns** just the **weightGain column** from the chickens data frame.

#### Option 2

Consider the chickens data frame we read in on line 30. What is the purpose of the code on line 59? That is, what does this code do?

#### Example Answer

It **returns** just the 1st and 2nd columns from the chickens data frame.

#### Option 3

Consider the smoke data frame we read in on line 36. What is the purpose of the code on line 68? That is, what does this code do?

#### Example Answer

It **returns** just the **PacksPerDay column** from the smoke data frame.

### Question 4 (2 pts):

#### Option 1

Consider the code on lines 79-81. What type of object is data\_files?

#### Example Answer

A list. If they say vector, ask them if they know which type of vector the object is.

#### Option 2

Consider the code on line 49. What type of object is x?

#### Example Answer

A vector (or indexing vector would be fine).

#### Option 4

Consider the code on line 69. What type of object is y?

#### Example Answer

A vector (or indexing vector would be fine).

## Wrap up

Tell them thank you for answering the questions and that they will have access to their grade after all the oral discussions have completed.