**Citizen Science Project (10%)**

Introduction

Recruiting citizens to assist professional scientists in carrying out important astronomical research is a burgeoning approach. Citizen scientists have discovered planets beyond our Solar System and established morphological classifications for thousands of galaxies (e.g., the [Planet Hunters](https://www.planethunters.org/?_ga=1.114928711.1165720784.1424797221) and [Galaxy Zoo](https://www.galaxyzoo.org/?_ga=1.69854288.1165720784.1424797221) projects). Citizen scientists can be provided with access to high-quality observations from space faring instruments, such as data from NASA’s famed [Kepler](http://kepler.nasa.gov/) and [Hubble Space Telescope](https://www.nasa.gov/mission_pages/hubble/main/index.html). Citizens are likewise recruited to classify impact craters and various features on the Moon using data from NASA’s [Lunar Reconnaissance Orbiter](https://en.wikipedia.org/wiki/Lunar_Reconnaissance_Orbiter) (i.e., the [Moon Zoo](https://www.moonzoo.org/) project).

Please visit the following link to read more about the exciting field of citizen science: <http://en.wikipedia.org/wiki/Citizen_science>.

Purpose

You will become a citizen scientist in this assignment, and participate in one of several projects relating to deep space or solar phenomena. In doing so, you will assist professional astronomers gain a deeper understanding of those phenomena.

Unit 3 looks at the Sun, the interstellar medium, and the stellar formation and structure so it is preferred that you select a project relating to these topics. However projects on the [Zooniverse](https://www.zooniverse.org/)site are sometimes completed, run out of data, or are unexpectedly taken down for maintenance. So pick a project based on the criteria we’ve given below in “Options.” All projects include a similar process (e.g., register for the project -> training -> participate in the project).

Please note that you will need Adobe Flash Player to complete your activities on this website. Download information can be found at this link <https://get.adobe.com/flashplayer/>. Ensure that your Adobe Flash Player is updated and that your browser or computer is not blocking it.

Instructions

1. Go to the [Zooniverse](https://www.zooniverse.org/) site.
2. If you haven’t already registered, then in the upper right hand corner of this page click on the “Register” link, fill out the form that appears, and then click on Register at the bottom of the form. Once you have registered with Zooniverse, “Sign In.”
3. Now read through the general information given on the Zooniverse site and at the bottom select “[See all projects](https://www.zooniverse.org/projects?page=1).”
4. Look through the projects listed here. You’ll note that many projects listed on this page do not relate to astronomy or to the topics of this course, but you may find some of these interesting to explore on your own. Feel free to explore any of them and even take part in some of them. However to receive credit for this assignment, you must choose and participate in a project that relates to astronomy and fits the criteria given in the “Options” section below. After reviewing the projects select the one you will participate in for this course. (Note that some projects are completed or out of data. You will not be able to participate in those.)
5. Go into your selected project, read through the background information given there, and take any training that is offered to learn what it is you’ll be doing and why.
6. Once you are trained, begin your analysis of the data presented. If there is more than one activity, you should take part in at least two of them. You should also analyse at least 20 sets of data. Keep notes on each set of data you analyse. You can use these to help write your report for Assignment 3.
7. During your participation, you also need to keep screenshots of the data you are working with and your input to the project. So take screen shots of a dozen or more sets of data and all particularly interesting data sets. You will need to include a number of these in your report. (See the section “Assignment Submission” below). When you take a screen shot, make sure you indicate it in your notes so you can relate your screenshot to the correct notes.
   1. PC users can take a screenshot of an active window by using the “Ctrl+Alt+PrtScr” function, while Mac users can use the “Command+shift+3” function to copy the entire screen or the “Command+shift+4” function to copy an area of the screen. You can then paste your screenshot into a Word document. For further information, view this [video](https://www.youtube.com/watch?v=EoTpIYLBtKs).

**Note**

This video says on a PC to use “Alt-PrtScr” to copy the active window to the clipboard. This will also work, but “Alt” causes some codes to appear in some programs. Using “Ctrl+Alt+PrtScr” prevents this.

1. Prepare your report and forward it to your Open Learning Faculty Member by the usual methods provided in this course.

**Options (Selecting the Citizen Science Project you will participate in for ASTR 1151)**

1. If it is available, select the [Solar Stormwatch Project](https://www.solarstormwatch.com/). (See Appendix A: Solar Stormwatch Resources)
2. If not select a project that relates to the Sun. (Example: [Sunspotter)](https://www.sunspotter.org/).
3. If the above options are not available then select an astronomy project that relates to stars, their structure, or formation. (Examples: [Disk Detective](https://www.diskdetective.org/?_ga=1.119188553.1165720784.1424797221), [The Milky Way Project](https://www.milkywayproject.org/?_ga=1.80799959.1165720784.1424797221))
4. If none of the above choices are possible then select an astronomy project that relates to objects or phenomena that are beyond the Solar System. (Examples: [Poppin Galaxies](https://www.zooniverse.org/projects/wim0705/poppin-galaxy/home), [Galaxy Zoo: Bar Lengths](https://www.zooniverse.org/projects/vrooje/galaxy-zoo-bar-lengths), [Spacewarps](https://spacewarps.org/?_ga=1.170451040.1165720784.1424797221))
   1. Do not select a project that relates to objects or phenomena within the Solar System as these projects are used in a similar assignment for ASTR 1141.
   2. If you participated in the Planet Hunters Project in ASTR 1141, you cannot use it here in ASTR 1151.

Please use all the resources provided on your selected project’s website. You can often get more information about the spacecraft involved and its (their) mission by clicking on the blue ‘**i**’ (information) icon.

**Assignment Submission**

You will submit your assignment as a Word document. At the beginning of your report, please include your name and student ID.

Please name your file according to the following format:

**Student ID\_ AS3\_Name.**

For example, Jan Smith would save her report as:

**T00000001\_AS3\_JanSmith.**

The overall assignment should be 500–1000 words and have a font size of 12. Ensure that you include the word count in your report under your name and student ID.

Your first paragraph must tell which citizen science project you chose to participate in and why. It should also include a sentence or two describing what your task was in your chosen project.

Screenshots or plots should be included in your report, in concert with answers to at least **two** of the following queries:

* What is the principal impetus behind the project?
* What scientific questions are being addressed?
* What unexpected results emerged?

You are required to include at least five (5) screenshots of the interesting phenomena you have witnessed in this project, or of the process of carrying out the analysis (project) itself. Screen shots must relate to the text of the report and you must include at least a sentence describing what each screenshot shows.

A sample report is provided in the Assignments area as a reference. Please follow the instructions for formatting this assignment carefully. (The sample report does not provide the correct format for this assignment. Please only use it as a reference to structure the assignment content.)

Please review the Evaluation Criteria below.

**Evaluation Criteria**

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| **Task** | **Marks** |
| Ensure that the Citizen Science Project report includes a short first paragraph stating which citizen science project was chosen and why. It must also contain a sentence or two describing the task that was performed in this project. | /15 |
| Ensure that the report   * is 500–1000 words long. * has the student’s name and student ID at the top. * has a word count provided on the first page of the report under the students ID and name. * has a font size of 12.   \*No partial marks are assigned for any missing components. | /10 |
| Ensure that at least two of the following questions are addressed:  What is the principal impetus behind the project?  What scientific questions are being addressed?  What unexpected results emerged?  \*You need to answer at least two questions to receive full marks. | /50 |
| Ensure there are at least 5 screenshots or links to your observations included in your report. Screen shots must relate to the text of the report and there must be at least a sentence describing what each screenshot shows. | /25 |
| **Total Marks** | /100 |