**University of Maine**

**Position Description**

**Title:** Postdoctoral Research Associate

**Department:** Physics and Astronomy

**Report To:** Professor of Physics and Astronomy (Neil F. Comins)

**Date:** January 2021

**Purpose:** To develop professionally as a future science education faculty member and/or researcher. This position will advance an NSF-funded project to motivate interest in STEM topics by allowing Minecraft users to ask “What if?” questions about the Earth, such as “What if the Moon didn’t exist?” or “What if the Earth was a moon,” and explore the consequences of these variation in the popular video game Minecraft. The project also seeks to provide educational opportunities related to the search for exoplanets, addressing questions of detecting exoplanets and determining their habitability. The selected candidate will be charged with creating models and supporting the implementation of Minecraft versions of fictional and known planets. Specifically, this postdoc position will be tasked with providing: calculations, observed evidence (from other researchers), and possibly simulations, for the targeted worlds to be built in Minecraft.

**Essential Duties and Responsibilities:**

* Take descriptive versions of alternative Earths and quantify the changes compared to the default version of Earth. Furthermore, the equations/descriptions of the changes need to be derived in a flexible format. For example, if the Earth was the moon of a larger world, the equations describing this system must allow for the larger world to have a range of masses and for the Earth to orbit at different distances.
* Provide suggestions as to how these alternative worlds can be implemented in Minecraft. In particular, propose how these alternative Minecraft versions of Earth would differ from the default Earth presented in Minecraft.
* The actual implementation of these new worlds will primarily be done by collaborators, but the postdoc is expected to participate in this part of the project, as required.
* Maintain records of all calculations, as well as descriptions of all relevant equations and variables.
* Use Minecraft on the University of Maine and/or on the UIUC computer to explore and verify the accuracy of these alternative worlds.
* Work with collaborators, including researchers at the UIUC, CU-Boulder, and PBS Nova to provide subject-matter expertise with regard to the models created and astrophysics generally.
* Co-author papers and/or presentations on this work.
* Perform other reasonably related duties as assigned.
* Mentor graduate and/or undergraduate students as appropriate.

**Knowledge and Skills Qualifications:**

**Required:**

* Ph.D.Astronomy or in Science Education with experience in related fields.
* Ability to communicate effectively both at the scientific level and with colleagues in the field of education.

**Preferred:**

* Experience with Minecraft.
* Preference will be given to candidates with some training in and/or experience with education outreach.

**Supervisory Responsibilities:** Possible interaction with students interested in voluntarily exploring these Minecraft worlds.

**Work Environment:** Work will be performed in an office in Bennett Hall.

**Work Year:** Full time.

**Work Schedule:** Normal University of Maine business hours are Monday through Friday 8:00 AM to 4:30 PM. Occasional work outside normal business hours may be necessary.

**Position Type:** Initial appointment one year with renewal up to two additional years, contingent on funding and performance.

**Schedule for Evaluation:** In accordance with the UMPSA agreement.

Appropriate background checks will be required.

All UMS employees are required to comply with applicable policies and procedures, as well as to complete applicable workspace related screenings, and required employee trainings, such as Information Security, Safety Training, Workplace Violence and Sexual Harassment training.