AT&T FACULTY-STAFF AWARDS IN INSTRUCTIONAL TECHNOLOGY
2012-2013 Faculty-Staff Competition
Course APPLICATION FORM

Course Identifier: (e.g. TLC801) **NUR 470**

Course Name: **Community and Population Health**

Department: **Traditional BSN Program**

College: **College of Nursing**

Primary contact name, phone number, and email *(normally this will be the lead instructor)*

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Faculty and Staff Involved in Developing and Offering the Course *please list full name, position at MSU, email address, and project role for each person*

Alphabetical listing

NAME	MSU AFFILIATION	PROJECT ROLE
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Which Competition Are You Entering (select one):
___ FULLY ONLINE COURSE (no required face to face component)
___ BLENDED/HYBRID OR FLIPPED COURSE (some face to face learning is replaced by online learning)
_X__ TECHNOLOGY-ENHANCED LEARNING INNOVATION (one specific technology innovation in a face-to-face, blended, flipped, or online course)

Semester(s) offered in 2012-2013 and number of students enrolled:

        SEMESTER: # STUDENTS
Fall 2012, Spring 2013, Summer 2013   162

Please address these categories:

I. Course Description (400 word limit)

NUR 470 at the College of Nursing (CON) teaches a theoretical and clinical practicum basis for community-oriented nursing practice. Community/public health nursing combines public health and nursing science to help students gain experience in promoting and protecting the health of the public. Students learn to use evidence-based health promotion, risk reduction, and disease control strategies in community settings with vulnerable populations. Subjects include principles of epidemiology, biostatistics, family theories, community assessment and program planning and evaluation.

Students take the NUR 470 Community and Population Health course in the last semester of their BSN program. The four credit course includes two hours a week of didactic class and six hours a week in a community clinical placement. Content is provided through reading assignments in the text and classroom lecture and discussion.

Clinical placement experiences total 90 hours over the course of the semester. The clinical practicum provides opportunities for community/public health nursing practice with vulnerable populations in selected settings. There are two major clinical assignments:
- a community assessment worth 25% of their grade
- a family assessment worth 15% of their grade.

Family Assessment Assignment
The family assessment assignment is based on Friedman's (2003) family assessment tool and the three core functions of public health—assessment, policy and assurance. Students are asked to view the family as a part of the community in which they live by analyzing the interaction between the family and their community as well as interactions within the family and individual family members' roles and functions. After a thorough assessment, students identify strengths and prioritize health risks of the family, then identify community resources for referrals and educational needs.

Students are provided opportunities to conduct a family assessment through home visits with assigned cases, through viewing a movie, and through virtual reality home visits (Fig. 1) to a family on Spartan Health Island in Second Life (SL).

Fig. 1 Student Nurse Avatar Visiting the Querilo family on Spartan Health Island

II. Learning and Interaction Goals of the Course or Technology-enhanced Innovation

Understanding the need for a prepared Public Health Nursing workforce
Members of the Public Health Nursing Section of the Michigan Public Health Association invited members of the Nurse Administrators' Forum of the Michigan Association for Local Public Health to participate in an effort to improve and enhance clinical placement opportunities for undergraduate nursing students in local public health departments. Nurse administrators identified many skills and qualities that are needed in the new nurses they hire. Among them was the ability to understand the complex needs of vulnerable families and to visit them in their homes. They voiced concern that new graduates be able to think independently without direct supervision, and be able to make decisions when there are multiple competing priorities. However, just as nursing schools have been increasing enrollment to meet the anticipated nursing shortage, changes in public health have resulted in fewer placement opportunities for nursing students or restrictions on their active participation due to requirements from funding sources. The task force is looking for new models of clinical education to provide opportunities to prepare students for Public Health Nursing.

Exposure to Real-Life Experiences in a Community Setting
In a world of shrinking Public Health Nursing clinical placements, yet increasingly complex family and community health challenges, virtual reality simulation provides a replication of real life experiences in a virtual environment. According to Nelson and Blenkin (2007), the more real the simulation, the more the students engage cognitively and emotionally. Engaged learning has a longer lasting impact on the student, with increased recall and use in real life situations. SL provides "an immersive environment where users interact and construct knowledge" (Skiba, 2007, p. 156). Students experience real life situations within the safety net of virtual reality simulations and learn from their mistakes. "Nursing students need opportunities to safely practice reading situations, imaginatively see possibilities, and draw on knowledge in particular clinical situations" (Benner, Sutphen, Leonard, & Day, 2010, p. 36).

The NUR 470 family assessment assignment and the learning objectives are the same regardless of the type of community setting. These include:

        1.Utilize principles of population-focused care when working with families in community settings;

        2.Identify health strengths and risks of a family;

        3.Apply novice home visiting skills;

        4.Identify community resources available to families in promoting health and reducing risk for disease;

        5.Apply evidence-based guidelines for health promotion goals and interventions;

        6.Examine the influence of cultural and social variables on the health of a family;

        7.Analyze a selected health policy and its influence on family health

III. Points of Interest and Innovation

Description of the Synchronous Experience

At the beginning of the experience, students are shown a videotape in class of a visit to the Querilo family by an experienced Public Health Nurse. The video gives some preliminary information about the family. As a group the students then discuss what information they already have and prepare for the first home visit.

The scenario is that Jorge Querilo has just been discharged from the hospital after being treated with active pulmonary tuberculosis. A referral to the local Public Health Nurse has been made for a household contact investigation and for daily observed therapy (DOT). In preparation for the experience, students are asked to come to clinical that day having reviewed the referral from the hospital (Fig. 2 Hospital Discharge Referral Form and Virtual Patient, Jorge Querilo), which is provided in ANGEL, the treatment algorithm for tuberculosis and the four medications the patient will be taking under their observation.

Students experience the virtual reality home visits as a clinical group of eight students. They make four virtual home visits as pairs to Spartan Health Island in Second Life using the Public Health Nurse avatars that they have created. They interact using the chat and voice tools in Second Life with one or more of the family member's avatars played by either a simulated patient or the clinical instructor.

Referral for Community Health Nursing Services
Spartan Health Island Public Health Department

Referring agency _____ Hospital Discharge Coordinator: Susie Smythe _____

Referral date xx/xx/2023 _____

Client name _____ Jorge Querilo _____ DOB _____ age 28 _____

Address _____ 24358 Railroad Street, Spartan Health Island _____ Telephone #: no phone _____

Gender: _Male_ Female   Ethnicity (optional): _White AA/Black Hispanic Asian other_ _____

Others in household _____ wife, Eva _____

Reason for referral:
Diagnosis: Pulmonary TB
Discharged after negative sputum culture
First Visit to home for DOT: Meds: isoniazid, rifampin, pyrazinamide, ethambutol
Eva skin tested last week; results negative

Diagnoses:

Pulmonary TB

Pertinent anecdotal information:

Fig 2 Hospital Discharge Referral Form and Virtual Patient, Jorge Querilo

As each pair makes their visit to the Querilo home on Spartan Health Island, the other six students observe and listen to the visit using other computer monitors. Ideally, the observations can take place in a separate room with the computer image projected onto a large screen and the voices broadcast on speakers. In addition to conducting DOT, students are instructed to ask the family (Fig. 3 Additional Querilo Family Members) for permission to conduct a family assessment for the purpose of connecting them with any resources in the community they might find helpful. Students have time between each visit to discuss the content and process of the visits and to prepare for the subsequent visits. Suggestions are made by the clinical instructor and their peers.

Eva Querilo, wife of Jorge

Adriana Gonzales, sister-in-law

Saul Querilo

Grandmother Querilo

Fig 3 Additional Querilo Family Members

A general discussion follows the last home visit. Since there is no grade for the conduct of the visits, a non-threatening atmosphere for a discussion of lessons learned, mistakes made, and suggestions for how particular situations could have been handled differently are easily made. Students and the clinical instructor can reinforce positive communication skills along with suggestions for improvements.

Students then have two weeks to complete the written assignment on their own. While much of the assessment information will be group work, an analysis of the strengths (Fig. 4 Outdoor Activities and Fig. 5 Home Cooking) and needs of the family and a prioritization of risks is an individual assignment. The discussion enhances reflection and offers multiple perspectives and the opportunity for collaborative learning.
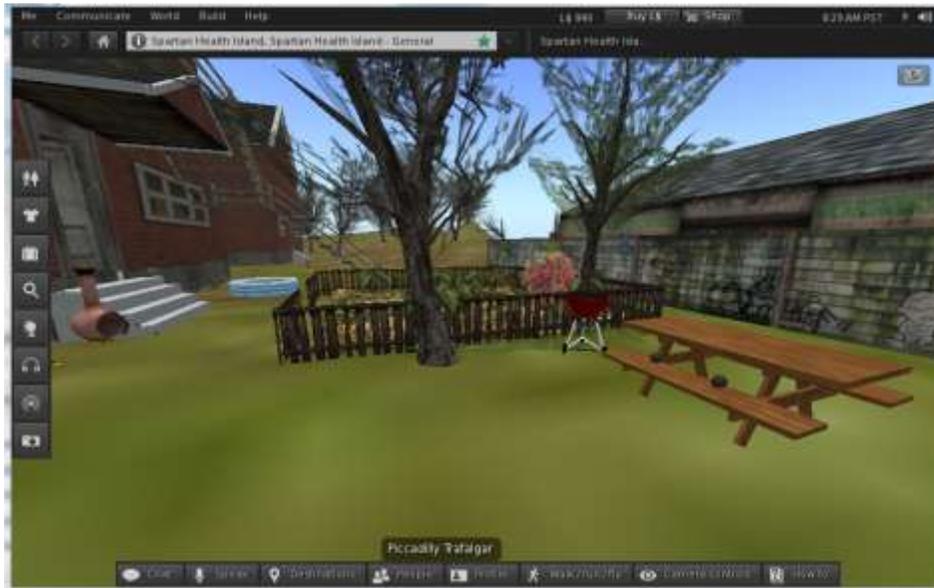

Fig 4 Outdoor Activities

The Querilo family grows many of their own fruits and vegetables, and has picnics outside when weather permits.

Fig 5 Home Cooking

The Querilo family cooks most of their meals at home and relies heavily on garden produce.

Description of the Environment

A standardized method for avatar creation and orientation to the Second Life environment is used to access Spartan Health Island. It comprises:

Avatar Creation Portal--Students use their university single sign-on identification to authenticate to the avatar creation portal (Fig. 6 Avatar Creation Portal) at https://aiss.nursing.msu.edu/reg. Students' avatars created through the portal are immediately transported to Spartan Health Island when logging in to Second Life. This keeps the island restricted to only avatars created through the portal with university identification. Avatars logging in for the first time land at the Orientation pods. Landing for subsequent logins depends on the user-specified location settings in Second Life.
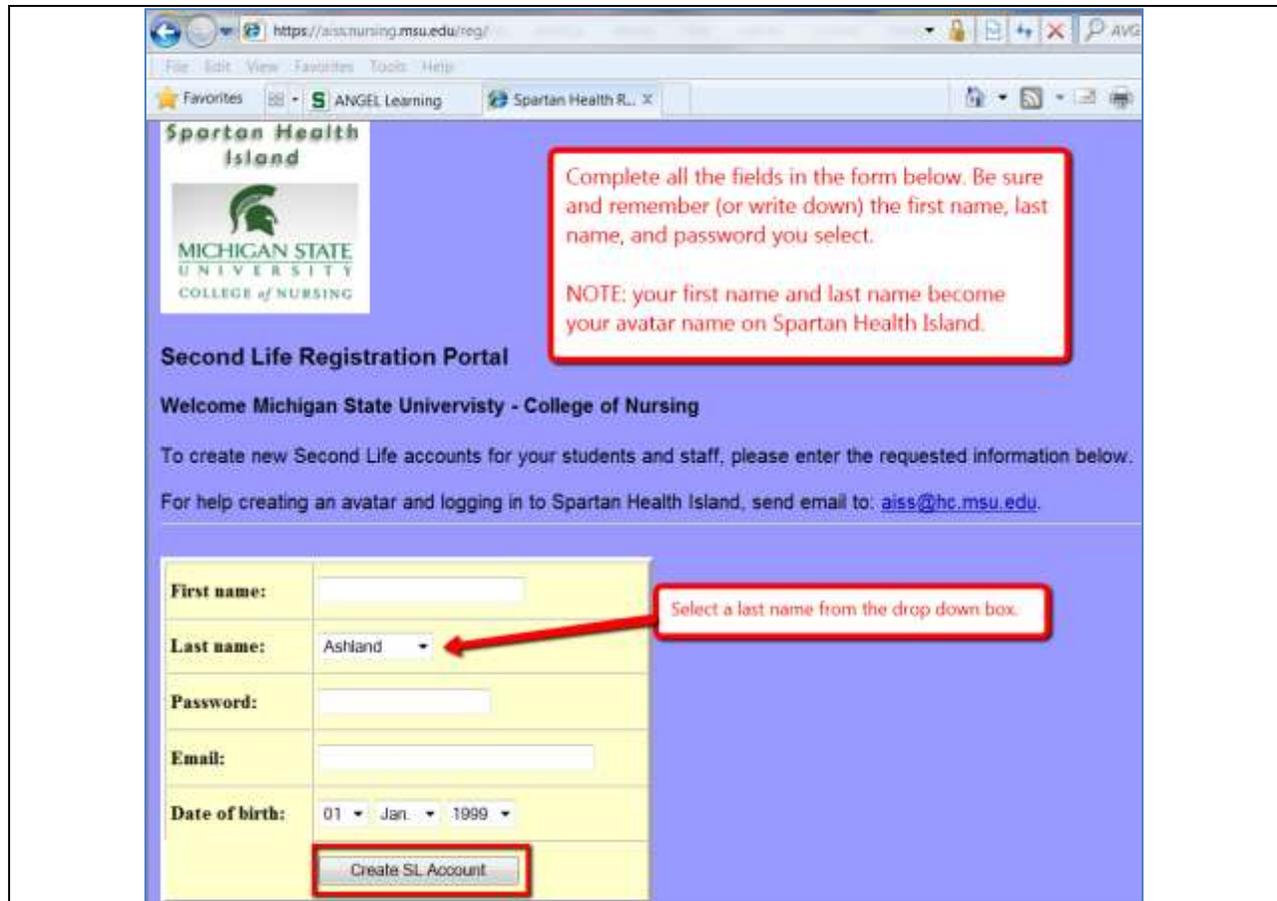
Fig 6 Avatar Creation Portal

Orientation Pods—Once an avatar is created, students open the Second Life Viewer downloaded from http://secondlife.com and log in with the username and password they created in the portal. Three orientation pods (Fig. 7 Orientation Pods) allow students to personalize their appearance, learn how to communicate and navigate, and become familiar with the geography of the entire island, including the neighborhood where the public health simulation is conducted.
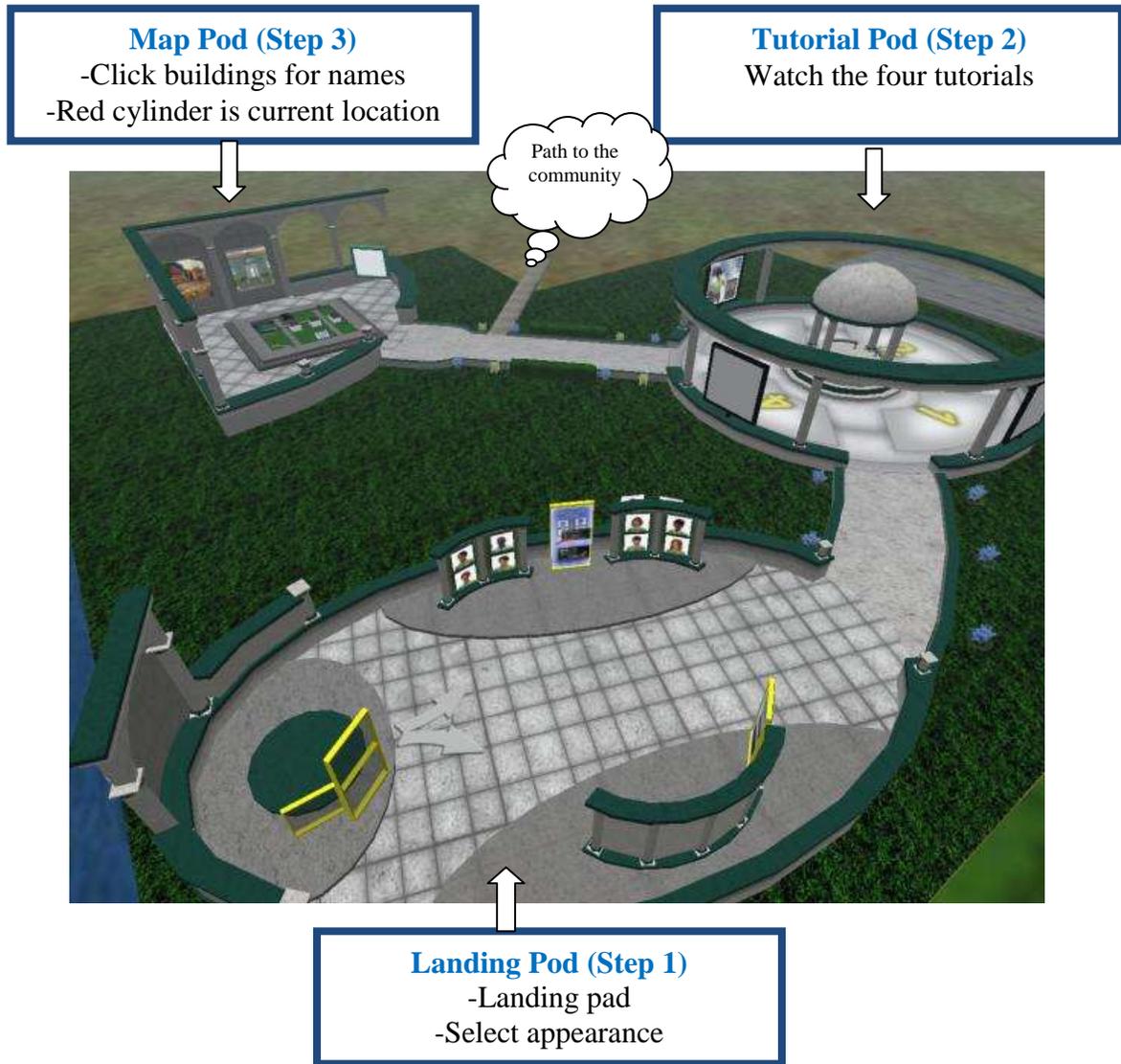
Map Pod (Step 3)
-Click buildings for names
-Red cylinder is current location

Path to the community

Tutorial Pod (Step 2)
Watch the four tutorials

Landing Pod (Step 1)
-Landing pad
-Select appearance

Fig 7 Orientation Pods

The first pod is the **Landing Pod** with immediate signage about how to move the avatar using the keyboard. Avatars are directed to signage with instructions on how to choose an ethnicity and one of four nursing student uniforms provided.

The **Tutorial Pod** contains four slideshow presentations about navigation, communication, editing an appearance, and interacting with objects. Each presentation is numbered with the title displayed below the slide. Each slideshow contains four to six slides and plays in a continuous loop.

The **Map Pod** has an interactive mock-up of the community. Student avatars click on buildings to learn their names. Close-up pictures of buildings and a video about the various nursing profession simulations on the island are also included.

Once students complete the orientation, an exit path takes them to the community with access to various locations on the island. For example, public health students go to the urban neighborhood where the Querilo family lives.

IV. Accessibility
(It is not a requirement that winning entries be accessible to learners with visual, auditory, mobility, and cognitive disabilities. However, if your course content or technology-enhanced learning innovation is accessible, or if it incorporates an innovative approach to accessibility, please describe.)

V. Evidence of Effectiveness with Students

A survey of faculty and students was conducted following the first semester of using the virtual reality experience. Faculty remarked that the Second Life experience provided a good way to prepare for actual home visits. They reported that students were able to complete the learning objectives as evidenced by their scores on the family assessment assignment. (The same rubric was used for the family assessment assignment as those conducted with real families.) They mentioned the value of the discussion they could have with the clinical group immediately after the visits. The clinical instructors liked being able to "accompany" students on their visits and see first-hand their interactions, give them cues, suggestions to use, guiding and directing without taking over.

Students' responses on the survey included the following: They thought that the virtual visit was a good way to practice doing a home visit, but should not take the place of a live one. They thought it did not seem real, somewhat difficult to take seriously, unable to immerse, felt too simulated. As remediation, an introductory video is shown in class.

Students also felt hindered by the technical aspects, so the portal and orientation were developed last year to help students create an avatar and learn the key points of navigating and communicating in SL. Students said they liked having the professor immediately available during their home visit to offer support. They reported that it seemed like a good way to learn strengths and weaknesses of communication skills.

VI. Plans for Sustainability
Spartan Health Island is used in other CON nursing courses and programs. These include:

- NUR 470 BSN for Registered Nurses (RN to BSN) program (online)—in the spring 2013 semester several online students from locations as remote as California will conduct a virtual family assessment. This requires a slight modification of the procedure used for traditional, on-campus students, and that procedure is now being written.

- BSN Registered Nurses (RN to BSN) program (online)—in summer 2013 virtual reality simulation will be used for the first time in the new Health Promotion course. Students will develop a PowerPoint teaching project and deliver it virtually to student avatars in the classroom of the school building on Spartan Health Island. The clinical instructor and other on-line students will be the virtual students.
- NUR 435 Care of the Childbearing Family and NUR 440 Nursing Care of Children, Adolescents & Their Family (face to face)—uses a virtual reality simulation related to an at-risk pregnancy. Nursing students meet the pregnant mother in the Women's Health Clinic located at the Spartan Health Department on the island.
- Nurse Practitioner Program (hybrid)—uses scripted diagnostic simulations for four pediatric patients in the Granger Primary Care Center, located on the island.
- Nurse Anesthesia Program (face to face)—uses the Spartan Health Center on the island to conduct classroom activities and simulations for students learning to administer anesthesia in the operating room. Recently completed, the Spartan Health Center is a virtual hospital environment with surgical suites, an emergency room, medical/surgical floors, and labor and delivery rooms, to name a few. Additional virtual simulations of patients admitted to the hospital are being considered.

Plans are also under way to develop additional nursing care scenarios for three other families that live on the island and have various health concerns.

References:

Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation.* San Francisco: Jossey-Bass.

Friedman, M.M., Bowden, V.R., and Jones, E. G. *(2003). Family nursing/research, theory, and practice (5th Ed.)* Upper Saddle River, New Jersey: Prentice Hall.

Nelson, D. & Blenkin, C. (2007). The power of online role-play simulations: Technology in nursing education. *International journal of Nursing Education Scholarship*, 4 (1), article 1.

Skiba, D. (2007). Nursing education 2/0: Second life. *Nursing Education Perspectives*, 28 (3), pp. 156-157.