# Interprofessional Cancer Research Training - Marriott et al. Appendix A. Educational Context and Pedagogical Alignment for Program Design.

Alignment to Next Generation Science Standards. The program framed experiences around the educational content that scholars received in school. For example, Oregon high schools use Next Generation Science Standards (NGSS) as the framework for teaching science (NGSS Lead States, 2013). NGSS comprises three dimensions that provide students with a comprehensive view of science and why it matters (http://www.nextgenscience.org/three-dimensions). NGSS cross-cutting concepts facilitate making predictions about disciplinary core ideas, which can be modeled and tested with practices to advance the scientific knowledge base. NGSS dimensions were adapted to the cancer research environment (Table A1), overlaying lenses of content, context, and process learned from our prior teacher professional development programs (i.e., Teacher Institute for the Experience of Science; Table A2). These materials were shared via a public-facing Google site with training partners in advance of summer 2021 virtual programs in order to prepare community partners, health professionals, and research scientists with context and examples of the types of experiences and goals that the program wanted scholars to receive.

**Immersion Scholar Community Research Projects.** In the 2021 Immersion program, fourteen scholars developed community research projects that identified, researched, and presented a cancer issue facing their community in a public setting. As cancer research is frequently done in interprofessional collaborative teams, scholars were able to work independently or with others. In 2021, three of the nine projects (33%) focused on skin cancer, including "Skin cancer in Hispanics" (4 rural scholars); "Should African Americans use sunscreen?" (1 urban scholar); and "Women of color, colorism, skin whitening, and cancer" (1 urban scholar). Other community research projects included "Rural vs urban women and cancer" (1 rural and 1 urban scholar); "Mental health in cancer patients" (2 rural scholars); "Neuroblastoma in newborns and children" (1 rural scholar); "HPV and cervical cancer" (1 rural scholar). Projects received mentorship from peer mentors and program staff who represented OHSU community liaisons in research and STEM education. One NIH BUILD peer mentor volunteered to lead project development with scholars and shared approaches and lessons learned from when she first started in research.

NGSS Dimension	Disciplinary Core Idea	Practices	Cross-cutting Concepts
Definition	The broad concepts and key content of that being studied, like cell biology, genetics, immunology. These help to set the frame for clinical targets, like those used in precision oncology.	These are the behaviors used to build mod- els and test what we would expect. It also includes scientific inquiry and the practices used to build knowledge.	These concepts link across all areas of science, such as patterns, cause and effect, scale, proportion and quantity, structure and function, stability and change, similarity and diversity.
Example questions applied to cancer research training	<ul> <li>How does DNA work? How does genetics influence the way a cell functions?</li> <li>How does chemotherapy kill cancer cells?</li> <li>What is radiation oncology?</li> </ul>	<ul> <li>How is cancer risk assessed? What approaches are used to measure effectiveness of a cancer drug?</li> <li>How can we model cancer clusters to understand who might be at risk?</li> </ul>	<ul> <li>How does a cancer cell's structure influence the way it functions, like hide from the immune system?</li> <li>What proportion of a population have new cancer (incidence) vs existing cancer (prevalence)</li> </ul>

 Table A1. Next Generation Science Standards (NGSS) applied to cancer research training in the Knight Scholars Program.

### Table A2. Lenses for framing cancer research training applied from the Teacher Institute for the Experience of Science.

Applied Lens	Content	Process	Context
Example questions	<ul><li>What is happening?</li><li>What is the science behind the experiment, procedure, or analysis?</li></ul>	<ul><li> How do research teams work together?</li><li> What models are used to make predictions?</li></ul>	<ul> <li>Who are the people who do the work?</li> <li>What are the settings where the work happens?</li> <li>Where along the cancer continuum is work focused?</li> </ul>
Applied examples in a training setting	<ul> <li>Cancer biology - What is cancer biology and what are the different types of cancer?</li> <li>Scientific fields of cancer - What scientific fields study cancer (e.g., molecular biology, genetics, immunology, cell biology, immunology)</li> <li>Clinical trials and early detection – What is being targeted? How is precision prevention, precision oncology, and precision medicine changing cancer care</li> <li>Diversity and equity within cancer Cancer inequities affect populations and access to care. What disparities exist in cancer? How can workforce diversity drive innovation?</li> <li>Continuum of cancer care - How does cancer care shift across cancer continuum (i.e., cancer prevention, screening, detection, treatment, survivorship)</li> <li>Environmental impacts. Built environment and impact on cancer risk (e.g., air, toxins).</li> <li>Epigenetics. How might stress and environmental exposures impact how DNA work?</li> <li>Looking forward – What might be expected with new science, like microbiome impacts (e.g., gut bacteria and their emerging role in decisionmaking and metabolism of environmental toxins, including an emerging role in cancer.</li> </ul>	<ul> <li>Asking questions and defining problems</li> <li>Planning and carrying out investigations, including constructing explanations and designing solutions</li> <li>Scientific method and the importance of replication, controls, and questioning evidence.</li> <li>Developing and using models</li> <li>Research Ethics, including bodies that safeguard humans and animals in research (e.g. IRB, IACUC)</li> <li>Using mathematics and computational thinking, including analyzing and interpreting data; Graph interpretation</li> <li>Communication skills</li> <li>Obtaining, evaluating, and communicating information</li> <li>Research documentation keeping track of what was done (e.g., lab notebooks, field notes)</li> <li>Literature searches (e.g., PubMed, Google Scholar, EBSCO) plus key resources/databases</li> <li>Citation management. Keeping track of scientific literature</li> <li>Engaging in argument from evidence during process of science communication - via journal articles &amp; scientific conferences)</li> <li>Science education. Adapting communication approach based on the audience</li> <li>Methods</li> <li>Qualitative Methods (including interviews, photovoice, observations)</li> </ul>	<ul> <li>What is the environment in which most of this work is done?</li> <li>How often are you around people - do you work alone or in teams?</li> <li>What professional organizations are highly regarded in your field?</li> <li>What is considered success in your field?</li> <li>Normalize <ul> <li>Failure and persistence. Failure as a scientific process; persistence is key</li> <li>Research on process advances training (e.g., simulation, microsurgery practice)</li> <li>Self-care is important for limiting burnout</li> </ul> </li> <li>Ways to include Cross-Cutting Concepts <ul> <li>Similarity and diversity</li> <li>Patterns</li> <li>Structure and function</li> <li>Stability and change</li> <li>Cause and effect</li> <li>Scale</li> <li>Proportion and quantity</li> </ul> </li> </ul>

 Quantitative Methods (testing samples, survey design, statistics and significance testing, computational biology, data informatics

#### Table A3. Learning objectives for Immersion programs' shadowing experiences and resulting shadowing experiences.

Shadowing Experience	Learning Objectives and Guiding Prompts for Immersion Program	Immersion Shadowing Experiences (2021 virtual program) Phrases indicate scholars met that type of professional
Clinical (2 weeks in community)	<ul> <li>At the end of the clinical shadow, the scholar will:</li> <li>Identify three different ways that a clinical health provider interacts with a cancer patient (e.g. conversations with oncologist, palliative care nurse, etc.)</li> <li>Describe how clinical care changes across the cancer continuum (e.g., prevention, screening, diagnosis, treatment, survivorship; more about the cancer continuum)</li> <li>Describe access to cancer clinical care across Oregon communities and use of telemedicine.</li> </ul>	<ul> <li>Cancer fields and careers: Clinical biostatistics; overview of a community oncology clinic; cancer research teams within cancer clinics; Tribal health (history, screening, &amp; prevention); radiation therapy; radiation oncology; physician/scientist; pediatric cancer; chaplain conversations; radiology; pediatric and gene therapy; behavioral health; nurse practitioner; cancer survivorship; childhood cancer; social work; survivorship nurse; childhood cancer survivorship panel; clinical trials; precision medicine, applied research study examples.</li> <li>Virtual Tours: oncology clinic; cancer patient's journey; radiation therapy facility</li> <li>Regulatory: Health Insurance Portability &amp; Accountability Act (HIPAA)</li> <li>Communication: science writing (university); graphics in science, journal club: ultrasound (Nauka &amp; Galen, 2020)</li> <li>Clinical simulation: introduction to ultrasound</li> </ul>
Public Health (2 weeks in community)	<ul> <li>At the end of the public health shadow, the scholar will:</li> <li>Describe how data is used to inform screening programs (e.g. eligibility, event locations, types of screening provided, etc.)</li> <li>Describe how public health infrastructure impacts access to cancer care</li> <li>Describe how public health can be used to identify cancer disparities and inequities.</li> </ul>	<ul> <li>Public health fields and careers: introduction to public health; overview of state and county public health departments; cancer surveillance and care in Tribal communities; population health; health equity; public health professor; reproductive health services; maternal-child health; behavioral health; communicable diseases; screening guidelines; nutrition programs; harm reduction programs; policy careers; cancer prevention [tobacco, diabetes]; coronavirus response and public health impacts; suicide &amp; problem gambling prevention; statistics &amp; epidemiology; HPV and immunizations; environmental health; public health research; emergency preparedness; overdose response &amp; prevention; community engagement</li> <li>Health equity: data justice and decolonizing data; disparities in cancer care and treatment; offices of equity and inclusion within public health organizations</li> <li>Policy &amp; Regulatory: tobacco policy &amp; history; state health improvement plans; population health policy; government relations, developing legislation; Title V; county commissioner; local advocacy</li> <li>Communication: county health reports; public health partner meetings; tobacco prevention coalition meetings; cancer networks; radio taping</li> </ul>
Research Rotations (2 weeks at research university plus 3 weeks of research preparation)	<ul> <li>At the end of the research rotations, the scholar will:</li> <li>Construct a list of research skills and scientific fields that are used by the research team to study cancer</li> <li>Describe different settings in which cancer research can be done.</li> <li>Describe how the research team thinks about cancer early detection and precision medicine in their work</li> </ul>	<ul> <li>Research rotation areas: cancer survivorship; pancreatic cancer; breast cancer; tumor microenvironment; community research; genetic risk for cancer; nanomaterials; cancer vaccines; biostatistics; computational biology</li> <li>Research skills: Photovoice; finding literature &amp; citation management; sourcing data; coding qualitative data; data visualization and reporting</li> <li>Regulatory: research ethics</li> <li>Communication: Informational interviewing; professional networking; research question formulation; project presentation</li> <li>Simulation: Research on microbubbles with ultrasound for cancer treatment</li> </ul>
Outreach (1 week in community)	<ul> <li>At the end of the outreach shadow, the scholar will:</li> <li>Describe different ways in which cancer organizations reach communities of interest</li> <li>Describe how cancer education materials can be tailored to different audiences</li> <li>Identify ways that outreach and data intersect</li> </ul>	<ul> <li>Outreach fields and careers: Farm non-profit for vegetable intake; health initiatives; community health outreach; community research liaisons; population-focused organizations; cancer clinic outpatient; cancer community partnership grantees; raising cultural awareness around Tribal health; chronic disease prevention; outreach organizations</li> <li>Simulation: outreach and patient communication about palliative care</li> </ul>

Table A4. Cancer topic areas and work environments rated by applicants (0-100) to permit scholar matching with available research rotations and experiences.

<b>Cancer Topics and Focus Areas</b>	Work Environments
<ul> <li>Cancer disparities and inequities</li> <li>Microscopes and cancer imaging</li> <li>Cancer early detection and screening</li> <li>Improving clinical treatments</li> <li>Cancer survivorship (how to improve care for people who have completed cancer treatment)</li> <li>Young adult/adolescent cancers</li> <li>Precision oncology (matching treatments with the genetics of the person/tumor)</li> <li>Computational biology (This describes how to use large data sets, like DNA sequences or health records from many people, to ask research questions</li> <li>Cancer statistics (How can you know if two groups are actually different? Are there any groups that respond differently than the others? Uses math to ask research questions.)</li> <li>Cancer education of the community</li> <li>Cancer vaccinations (like human papilloma virus [HPV] vaccine)</li> <li>Immune system and cancer Drug resistance of cancers</li> <li>Cancer biology – describes genetic, molecular and cellular actions that start tumor formation, drive cancer progression, and shape response or resistance to therapy.</li> <li>Specific cancers (like breast cancer, skin cancer, blood cancers, etc.)</li> </ul>	<ul> <li>Clinical (i.e. medicine, doctor's offices, clinics)</li> <li>Public Health</li> <li>Outreach (i.e. out in the community, talking with people, going to health events)</li> <li>Research – in a laboratory (this describes working in a laboratory on scientific topics, like working with DNA, microscopes, cells, etc.)</li> <li>Research – outside of a laboratory (Not all research happens inside a laboratory. This could include using data to ask research questions, working with people to collect samples in a doctor's office, or any other task where you are doing research but not in a laboratory.)</li> <li>Chemotherapy (working in a setting where patients are receiving cancer treatment)</li> <li>Other: (If you want to be more specific or let us know about anything in more detail.)</li> </ul>
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 Other: (Please describe below if we're missing something that is of interest to you.)

# **KNIGHT SCHOLAR PROGRAM SCHEDULES**

 Table A5. Introduction program schedule (2019 Program, 7-day in-person residential program)

(yellow)

(orange)

1	General	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Schedule	July 14	July 15	July 16	July 17	July 18	July 19	July 20
7:00					Breakfast ava	ilable at dorms		
8:15	Travel time				Depart - tra	vel to OHSU		
8:40				Daily Huddle a	round cancer theme wit	h Knight Scholars Progr	am (KSP) staff:	
	Daily Huddle		Oregon's Cancer		Cancer Detection and	Translational and	Survivorship and	
	Daily Huddle		Landscape	Clinical Care	Personalized	Basic Research	Community Research	Prevention
			(Population Health)		Medicine			
9:20	Background		Introduction to	Pediatric Oncology	Cancer Biology	Introduction to	Cancer Survivorship	Intro to Prevention
	Content #1		(Clinician)	(Clinician)	(Graduate student)	(Public Health PhD)	(Clinician)	(Public Health PhD)
10:20	Break		(Onnicidity		Br	eak		
10:40	Destaura	Troval day	a a	What are clinical	What is precision	Translational		
	Background	and arrival to	(Dublic Hoolth DbD)	trials?	oncology?	Research	(Desearch staff)	(KSD Toom)
	Content #2	dorms		(Research staff)	(Research staff)	(Research PhD)	(Research stall)	(KSP Tealli)
11:40	Networking			Lunch with a	Cancer Expert		Focus Groups	
	Lunch with		CURE Alumni	Treatment	Cancer Biology	Cancer Vaccines	(3 rooms: 90 minutes)	Pack-up time
42.40	Traval time		(Research PhD)	(Clinician)	(Graduate student)	(Research PhD)	1:10 departure; tram	Dopart dorms & travel
12:40	Traver ume			Travel ume				home (sack lunch)
1.10				(Clinician) Center for Farly		1:40	. ,	
	Experiential		Cancer Institute and	(onnoidin)	Detection and	Center for Spatial	Interactive Research:	
	session or tour		University Iour	Cancer Family Care	Advanced Research	Systems Biomedicine	Skin Cancer	
			(KSF lealin)	Facility Tour (2:30-	(Research team)	(Research reall)	(Research Team)	
				3:30)			(Research really)	
3:10	Travel time	3 pm: Dorm		Trave	el time		Post-program	
3:25	Reflection	check in,		Daily Re	eflection		evaluation	
4:10	I ravel time	evaluation	Otedeathers	Depart and I	ravel time to dormitory;	arrive by 4:30	da a franciska a da da a san	
4:30	Break	5:00 Welcomo	Student brea	k & downtime activities	(4:30-6); chaperoned b	y peer mentors and resi	dent advisors	
6:15	Dinner with	Dinner	(Clinician Public	Unner with	Dinner with Cancer	Undergraduate and	<b>Dinner with Scientist</b>	
	Mentors	(Group)	Health)	researchers	Institute Director	Graduate Admissions	(Research)	
8:00	Ontional	(	( iounity					
	Evening Activity	In dorms	Group chooses	Group chooses	Group chooses	Group chooses	Group chooses	
10:00	Dorma			Pa	ok in dorme			
10.00	Doritis			Da				
			Content & Tonical	Networking and	Experiential	1949 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 - 1947 -		22554 44 4000000 80000
	Legend		Talks	informal chats	session or Tour	Program activities	Optional activities	Break or Travel
Legenu			(vellow)	(orange)	(green)	(blue)	(pink)	(grey)

(green)

#### Table A6. Introduction program schedule (2021, virtual 5 day program).

	General	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
	Schedule		July 12	July 13	July 14	July 15	July 16		
7:00				Breakfast at home					
9:00			[	Daily Huddle around cancer theme with Knight Scholars Program (KSP) staff:					
	Daily Huddle		Oregon's Cancer Landscape (Population Health)	Clinical Care	Cancer Detection and Precision Oncology	Translational and Basic Research	Community Research		
9:30	Session #1		Welcome and Overview (Cancer Ctr Director)	Meet the Clinician Scientist (Clinician/Research)	Precision Oncology & Clinical Trials (Research PhD)	Introduction to Microscopy (Research PhD)	Applied Research: Cancer Genetic Testing (Research Team)		
10:30	Break			P	Break (15 min)				
10:45	Session #2	No Activity	Scholar Introductions	Clinical Roundtable (MD, RN, LCSW, MA, CCLS, AART)	Early Detection Research Center Virtual Tour (Research team)	Cancer Care & Radiation Oncology (Clinician)	Immersion Scholar Meet & Greet	No Activity	
11:45	Lunch at home			Lunch break (No program)					
12:30	Networking after lunch		Peer Mentor Networking (KSP peer mentors)	Meet the Scientist (Biostatistician; Research staff)	Community Liaison Networking (KSP staff)	Research Rotations in breakout rooms (6 research scientists)			
1:15	Debrief			Afternoon Debrief Evaluation (3 rooms)					
1:45	Depart			Depart					
PM	Independent reflection		Independent reflection; Offline time at home						
	Legend Content & Topical Networking and informal chats (vellow) (orange) Virtual Tour (green) Program activities (blue) Break or home (grey)				e time				

Table A7. Overview of Immersion program schedule (2021, virtual).

Week	2021 Dates	Weekly Topical Theme	Monday	Tuesday	Wednesday	Thursday	Friday	Professional Development Theme
1	Jun 21-25	Research Orientation	Welcome & Overview	Simulation & Photovoice	Research Skills (Photography, Ethics)	Shadowing Expectations	Interviewing	Bravery
2	Jun 28-Jul 2	Clinical Shadow	Clinical Orientation	Cancer Care	Precision Oncology & Advancements	Radiation Therapy & Chemotherapy	Clinical Trials	Innovation
3	Jul 5-July 9	Clinical Shadow	No Program (July 4 holiday)	Telemedicine & Access to Care	Family Medicine & Survivorship	Clinical Training	Clinical Debrief & Photovoice	Compassion
4	Jul 12-16	Public Health Shadow	Public Health Orientation	Population Health	Screening Programs	Prevention	Public Health Collaborations	Collaboration
5	Jul 19-23	Community Research Project	Research Skills (Project Overview; Finding & citing sources)	Research Skills (Asking questions & sourcing data)	Research Skills (Observation & Qualitative Coding)	Research Skills (Data visualization and reporting)	Research Skills Share & Debrief	Discovery
6	Jul 26-30	Public Health Shadow	Statistics & Data Science	Environmental Health & Cancer	Cancer Vaccinations	Public Health Training	Public Health Shadow Debrief & Photovoice	Curiosity
7	Aug 2-6	OHSU Research Rotations	Rotation A	Rotation A	Rotation B	Rotation B	Research Round Robin	Perseverance
8	Aug 9-13	OHSU Research Rotations	Rotation C	Rotation C	Rotation D	Rotation D	Research Rotation Debrief & Photovoice	Problem-solving
9	Aug 16-20	Outreach Shadow	Outreach Orientation	Communication Approaches	Outreach Events	Networking & Outreach Training	Outreach Debrief & Photovoice	Teamwork
10	Aug 23-27	Culminating Presentations	Presentation Preparation	Presentations A	Presentations B	Graduation and Photovoice Ceremony	Immersion Debrief & Focus Groups	Celebration
				Public Health				
L	egend	OHSU Training (green)	Clinical Shadow (dark yellow)	Shadow (medium vellow)	Outreach Shadow (light yellow)	Rotations		

#### Table A8. Introduction program schedule (2021, virtual): Week 1 (Themes: Research Orientation; Bravery).

Week 1	<b>Monday</b> June 21, 2021	<b>Tuesday</b> June 22, 2021	Wednesday June 23, 2021	<b>Thursday</b> June 24, 2021	<b>Friday</b> June 25, 2021		
	Welcome & Overview	Simulation & Photovoice	Research Skills (Photography, Ethics)	Shadowing Expectations	Interviewing		
9:00 AM 9:15	Welcome back	Morning Huddle	Morning Huddle	Morning Huddle	Morning Huddle		
9:30 9:45 10:00 10:15	Scholar Re-Introductions	Simulation A (Clinical education team)	Research Librarians and Core Skills (Research librarians)	Clinical Shadowing Expectations (KSP community liaisons)	Simulation B (Clinical education team)		
10:30	Break	Break	Break	Break	Break		
10:45 11:00 11:15	Schedule Overview (KSP staff) Onboarding	Photovoice (KSP staff)	Research Ethics (Photovoice and beyond;	Writing Photovoice Narratives (KSP staff)	Informational Interviews (Research PhD)		
11:30	(KSP staff)	Debrief	Graduate student)	Debrief			
11:45 12:00 12:15	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break		
12:30 12:45 1:00	Peer Mentor Networking (KSP peer mentors)	Meet the Scientist - Photovoice (Public Health)	Photovoice Photography Skills (Graduate student)	Professional Networking Advice (KSP peer mentor team)	Photovoice Project Sharing (Immersion scholars)		
1:15	Peer Mentor Debrief						
1:30	Group Debrief						
1:45 2:00 +	5 0 0 +						
Legend	KSP Discussion Time (blue)	Networking (orange)	Simulation (purple)	Topic Overview (tan)	Research Training (green)		

Table A9. Introduction program schedule (2021, virtual): Week 2 (Themes: Clinical Shadow A; Innovation).

Week 2	<b>Monday</b> June 28, 2021	<b>Tuesday</b> June 29, 2021	Wednesday June 30, 2021	<b>Thursday</b> July 1, 2021	<b>Friday</b> July 2, 2021		
	Clinical Orientation	Cancer Care	Precision Oncology & Advancements	Radiation Therapy & Chemotherapy	Clinical Trials (OHSU)		
9:00 AM 9:15					Morning Huddle		
9:30 9:45 10:00 10:15	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Trials & Precision Medicine (Research staff)		
10:30	Break	Break	Break	Break	Break		
10:45 11:00 11:15 11:30	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Simulation C (Clinical education team)		
11:45 12:00 12:15	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break		
12:30 12:45 1:00	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Shadow	Photovoice Sharing Clinical Shadow (Immersion Scholars)		
1:15 1:30	Afternoon Debrief	<b>Debrief</b> (Peer Mentors & Group)	Debrief (Peer Mentors & Group)	(Flacement site)	<b>Debrief</b> (Peer Mentors & Group)		
1:45 2:00 +	1:45       2:00       +						
Logond		Oliniaal Obadaw	Oinculation	Tania Quantiau	Ducals/ house times		
Legend	(blue)	(dark yellow)	(purple)	(tan)	(grey)		

### Table A10. Introduction program schedule (2021, virtual): Week 3 (Themes: Clinical Shadow B; Compassion).

Week 3	<b>Monday</b> July 5, 2021	<b>Tuesday</b> July 6, 2021	Wednesday July 7, 2021	<b>Thursday</b> July 8, 2021	<b>Friday</b> July 9, 2021
	No Program (July 4 holiday)	Telemedicine & Access to Care	Family Medicine & Survivorship	Clinical Training	Clinical Debrief & Photovoice
9:00 AM 9:15					Morning Huddle
9:30 9:45 10:00 10:15		Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Photovoice sharing: clinical shadow (Research staff)
10:30		Break	Break	Break	Break
10:45 11:00 11:15 11:30	No program	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	<b>Clinical Debrief</b> (KSP teacher liaison)
11:45 12:00 12:15	(July 4 holiday)	Lunch Break	Lunch Break	Lunch Break	Lunch Break
12:30 12:45 1:00	5	OHSU welcome event for summer students	Clinical Shadow (Placement site)	Clinical Shadow (Placement site)	Peer Networking (KSP peer mentors)
1:15 1:30		(Networking)	Debrief (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)
1:45 2:00 +		Debrief (Peer Mentors & Group)	(recrimentors d credp) Depar	t; Offline individual reflection	n time
Legend		(blue)	(dark yellow)	(orange)	Break/ home time (grey)

Table A11. Introduction program schedule (2021, virtual): Week 4 (Themes: Public Health A; Collabor	ation).
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Week 4	<b>Monday</b> July 12, 2021	<b>Tuesday</b> July 13, 2021	Wednesday July 14, 2021	<b>Thursday</b> July 15, 2021	<b>Friday</b> July 16, 2021
	Public Health Orientation	Population Health	Screening Programs	Prevention	Public Health Collaborations
9:00 AM 9:15					Morning Huddle
9:30 9:45 10:00 10:15	Public Health Shadow (Placement site)	Cancer in Tribal Communities (Community partners)			
10:30	Break	Break	Break	Break	Break
10:45 11:00 11:15 11:30	Public Health Shadow (Placement site)	Meet and Greet with Introduction Scholars (Networking)			
11:45 12:00 12:15	Lunch Break				
12:30 12:45 1:00	Public Health Shadow (Placement site)	Public Health Shadow (Placement site)	Public Health Shadow (Placement site)	Public Health Shadow	<b>Group Work Time</b> (Immersion Scholars)
1:15 1:30	No debrief	<b>Debrief</b> (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)	(Flacement site)	<b>Debrief</b> (Peer Mentors & Group)
1:45 2:00 +	Depa	rt; Offline individual reflectio	Debrief (Peer Mentors & Group)	Depart; Offline reflection time	
Legend	KSP Discussion Time (blue)	Public Health Shadow (medium yellow)	Topic Overview (tan)	Networking (orange)	Break/ home time (grey)

Table A12 Introduction program schedule	(2021 virtual): Week 5 (Thomas: (	Community Research Project: Discovery)
<b>Table A12.</b> Introduction program schedule	(2021, VITIAL). WEEK 5 (THEMES. C	Joninunity Research 1 Tofect, Discovery).

Week 5	<b>Monday</b> July 19, 2021	<b>Tuesday</b> July 20, 2021	Wednesday July 21, 2021	<b>Thursday</b> July 22, 2021	<b>Friday</b> July 23, 2021	
	Research Skills (Project Overview; Finding & citing sources)	Research Skills (Asking questions & sourcing data)	Research Skills (Observation & Qualitative Coding)	Research Skills (Data visualization and reporting)	Research Skills Share & Debrief	
9:00 AM 9:15	Public Health Debrief	Morning Huddle	Morning Huddle	Morning Huddle	Morning Huddle	
9:30 9:45 10:00 10:15	Introduction to Community Research Project	Community Research & Framing Research Questions (KSP staff)	College Expectations (KSP team)	Data Visualization & Reporting (Research PhD)	Simulation D (Clinical education team)	
10:30	Break	Break	Break	Break	Break	
10:45 11:00 11:15	Finding Literature & Citation Management (KSP staff)	Sourcing Data (Research staff)	Cancer Interview Bank (Research PhD)	Community Presentation Work Time (Immersion Scholars & Peer Mentors)	Group Work & Preliminary Project Ideas Sharing (Immersion Scholars)	
11:30	· · · ·	Debrief		Debrief		
11:45 12:00 12:15	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break	
12:30 12:45 1:00	Scholar Networking (Immersion Scholars)	Family Presentation Work Time (Immersion Scholars)	Team Challenge: Data sourcing (KSP staff)	Family Presentation Work Time (Immersion Scholars)	Photovoice Sharing (Immersion scholars)	
1:15 1:30	Afternoon Debrief	Afternoon Debrief (peer mentor & group)				
1:45 2:00 +	Depart; Offline individual reflection time	Depart; Offline indiv	idual reflection time	Break (2-6) Family Night (optional; 6-7pm)	Depart; Offline individual reflection time	
Legend	KSP Discussion Time (blue)	Networking (orange)	Simulation (purple)	Topic Overview (tan)	Research Training (green)	

Table A13. Introduction program schedule (2021, virtual): Week 6 (Themes: Public Health B; Curiosity).

Week 6	<b>Monday</b> July 26, 2021	<b>Tuesday</b> July 27, 2021	Wednesday July 28, 2021	<b>Thursday</b> July 29, 2021	<b>Friday</b> July 30, 2021
	Statistics & Data Science	Environmental Health & Cancer	Cancer Vaccinations	Public Health Training	Public Health Shadow Debrief & Photovoice
9:00 AM					Morning Huddle
9:45 9:45 10:00 10:15	Public Health Shadow (Placement site)	Applied Project Example: Genetic Risk of Cancer (Research team)			
10:30	Break	Break	Break	Break	Break
10:45 11:00 11:15 11:30	Public Health Shadow (Placement site)	Communication around Cancer Genetic Risk (Research PhD)			
11:45 12:00 12:15	Lunch Break				
12:30 12:45 1:00	Public Health Shadow (Placement site)	Public Health Shadow (Placement site)	Public Health Shadow (Placement site)	Public Health Shadow	Public Health Photovoice Sharing (Immersion Scholars)
1:15 1:30	<b>Debrief</b> (Peer Mentors & Group)	Debrief (Peer Mentors & Group)	No Debrief	(Flacement site)	<b>Debrief</b> (Peer Mentors & Group)
1:45 2:00 +	1:45       2:00       +		Public Health Shadow (Placement site)	Debrief (Peer Mentors & Group)	Depart; Offline reflection time
Legend	KSP Discussion Time	Public Health Shadow (medium vellow)	Topic Overview (tan)	Break/ home time	

## Table A14. Introduction program schedule (2021, virtual): Week 7 (Themes: Research Rotations A; Perseverance).

Week 7	<b>Monday</b> August 2, 2021	<b>Tuesday</b> August 3, 2021	Wednesday August 4, 2021	<b>Thursday</b> August 5, 2021	<b>Friday</b> August 6, 2021
	Rotation A	Rotation A	Rotation B	Rotation B	Research Round Robin
8:00AM	No session	No session	Peer mentor office hours*	No session	No session
9:00 AM 9:15					Morning Huddle
9:30 9:45 10:00 10:15	Rotation A Research Shadow (Placement site)	Rotation A Research Shadow (Placement site)	Rotation B Research Shadow (Placement site)	Rotation B Research Shadow (Placement site)	Applied Project Example: Genetic Risk of Cancer (Research team)
10:30	Break	Break	Break	Break	Break
10:45 11:00 11:15 11:30	Rotation A Research Shadow (Placement site)	Rotation A Research Shadow (Placement site)	Rotation B Research Shadow (Placement site)	Rotation B Research Shadow (Placement site)	Communication around Cancer Genetic Risk (Research PhD)
11:45 12:00 12:15	Lunch Break				
12:30	Rotation A	Rotation A	Rotation B	Rotation <b>B</b>	Public Health Photovoice
12:45	Research Shadow (Placement site)	Research Shadow (Placement site)	Research Shadow (Placement site)	Research Shadow (Placement site)	Sharing (Immersion Scholars)
1:15	Debrief	Debrief	Debrief	Debrief	Debrief
1:30	(Peer Mentors & Group)				
2:00	Peer mentor office hours*	Depart; Offline reflection time	Peer mentor office hours*	Depart; Offline reflection time	Peer mentor office hours*
Legend	KSP Discussion Time (lighter blue)	Research Rotations (dark blue)	Topic Overview (tan)	Break/ home time (grey)	Research Training (green) *Office hours: choose 1

Table A15. Introduction program schedule (2021, virtual): Week 8 (Themes: Research Rotations B; Problem-solving).

Week 8	<b>Monday</b> August 9, 2021	<b>Tuesday</b> August 10, 2021	Wednesday August 11, 2021	<b>Thursday</b> August 12, 2021	<b>Friday</b> August 13, 2021
	Rotation C	Rotation C	Rotation D	Rotation D	Research Rotation Debrief & Photovoice
9:00 AM 9:15	0		<b>D</b>		Morning Huddle
9:30 9:45 10:00 10:15	Rotation C Research Shadow (Placement site)	Rotation C Research Shadow (Placement site)	Rotation D Research Shadow (Placement site)	Rotation D Research Shadow (Placement site)	Research Rotation Debrief (KSP teacher liaison)
10:30	Break	Break	Break	Break	Break
10:45 11:00 11:15 11:30	Rotation C Research Shadow (Placement site)	Rotation C Research Shadow (Placement site)	Rotation D Research Shadow (Placement site)	Rotation D Research Shadow (Placement site)	Preliminary Community Research Project Topics (Immersion Scholars)
11:45 12:00 12:15	Lunch Break				
12:30 12:45 1:00	Rotation C Research Shadow (Placement site)	Rotation C Research Shadow (Placement site)	Rotation D Research Shadow (Placement site)	Rotation D Research Shadow (Placement site)	Research Rotation Photovoice Sharing (Research team)
1:15 1:30	<b>Debrief</b> (Peer Mentors & Group)	Debrief (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)	Debrief (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)
1:45 2:00 +	1:45       2:00       +				
Legend	KSP Discussion Time (lighter blue)	Research Rotations (dark blue)	Research Training (green)	Break/ home time (grey)	

 Table A16. Introduction program schedule (2021, virtual): Week 9 (Themes: Outreach; Teamwork).

Week 9	<b>Monday</b> August 16, 2021	<b>Tuesday</b> August 17, 2021	Wednesday August 18, 2021	<b>Thursday</b> August 19, 2021	<b>Friday</b> August 20, 2021	
	Outreach Orientation	Communication Approaches	Outreach Events	Networking & Outreach Training	Outreach Debrief & Photovoice	
9:00 AM					Morning Huddle	
9:13 9:30 9:45 10:00 10:15	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	Simulation F (Patient Outreach & Communication; Clinical Education Team)	
10:30	Break	Break	Break	Break	Break	
10:45 11:00 11:15 11:30	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	<b>Outreach Debrief</b> (KSP teacher liaison)	
11:45 12:00 12:15	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break	
12:30 12:45 1:00	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	Outreach Shadow (Placement site)	Outreach Shadow Photovoice Sharing (Immersion Scholars)	
1:15 1:30	<b>Debrief</b> (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)	Debrief (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)	
1:45 2:00 +	1:45       2:00       +					
Legend	KSP Discussion Time (blue)	Outreach Shadow (light yellow)	(purple)	Break/ home time (grey)		

fable A17. Introduction program schedu	e (2021)	, virtual): Week 10 (1	Themes: Culminating	Presentations;	Celebration).
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Week 10	<b>Monday</b> August 23, 2021	<b>Tuesday</b> August 24, 2021	Wednesday August 25, 2021	<b>Thursday</b> August 26, 2021	Friday August 27, 2021
	Presentation Preparation	Presentations A	Presentations B	Graduation and Photovoice Ceremony	Immersion Debrief & Focus Groups
9:00 AM 9:15 9:30 9:45 10:00 10:15	Facilitated Work Time (KSP peer mentors & Immersion scholars)	Scholar Presentations 1-4 (Immersion scholars)	Scholar Presentations 1-4 (Immersion scholars)	Graduation Reflections (KSP teacher liaison)	Morning Huddle Core reflections for sharing with new scholars (KSP teacher liaison)
10:30	Break	Break	Break	Break	Break
10:45 11:00 11:15 11:30	Facilitated Work Time (KSP peer mentors & Immersion scholars)	Scholar Presentations 1-4 (Immersion scholars)	Scholar Presentations 1-4 (Immersion scholars)	Professional Development & Intensive Program (KSP staff)	Parting Goodbyes (KSP team)
11:45 12:00 12:15	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break
12:30 12:45 1:00	Immersion Scholar Networking	Introduction & Immersion Scholar Networking	Scientist Appreciation (KSP staff)	Culminating Photovoice Exhibit (Immersion scholars)	Focus Group Program Evaluation
1:15 1:30	<b>Debrief</b> (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)	<b>Debrief</b> (Peer Mentors & Group)	Debrief (Peer Mentors & Group)	90 min)
1:45 2:00				Break	Departs Offling in dividual
+	* Depart; Offline individual reflection tir		n time	Family Night Graduation Ceremony (optional; 6-7:30)	reflection time
Legend	KSP Discussion Time (blue)	Research Training (green)	Networking (orange)	Break/ home time (grey)	