NASA Space Radiation Summer School

2011 PROGRAM SCHEDULE: June 2 – June 24, 2011
BROOKHAVEN NATIONAL LABORATORY

	SUN	MON	TUES	WED	THURS	FRI	SAT
WEEK 1				June 1	June 2	June 3	June 4
8:30 am				Students' arrival at BNL all day	NASA Summer School Opening		
9:00 am					Training Audit, Obtain BNL Photo IDs & Computer Access Cash Checks at Credit Union (if needed)	NSRL Facility Radiobiology Users Training: 9-10:30am Iris scans and TLDs from 10:30-12 noon (Building 911 Snyder Seminar Room)	
10:00 am							
11:00 am							
12:00 pm					LUNCH	LUNCH	
12:30 pm				Security/Housing	Radiological Worker Classroom Training and Exam: 2-4:30 pm (to be confirmed) Medical Building	1:00 – 2:00 pm BNL Tour +Group Photo (Elaine Lowenstein) Start at Medical, Bld 490	FREE TIME
2:00 pm				(Check into Housing & Begin GUV Center processing if possible)		Complete iris scans and issuing of TLDs (if needed)	
3:00 pm						Elementary Reviews of Physics and Biology (L&D Goodhead, Nelson)	
3:30 pm			D.Goodhead, L.Goodhead, K. Buckaloo G. Nelson(?), Arrival at BNL				
5:00 pm						5:30 pm Student Welcome / BBQ – Brookhaven Ctr Patio (Nelson and Buckaloo) *Catered*	

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Week 2	June 5	June 6	June 7	June 8	June 9	June 10	June 11
8:30 am (8:30-9:00)	FREE TIME	Medical Dept. BM/PG/KR/BW Welcome & Program Goals	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	FREE TIME
9:00 am (9:00-10:00)		NASA's Mission & Roadmap (Krenek)	Radiobiology 2 (Hall)	Heavy Ions and Shielding Physics, including Neutrons (Heilbronn)	DNA Repair (Paul Wilson)	Epigenetics (Baulch) & Biology Experiment Overview for 6/10 (Baulch/Guida)	
10:00 am (10:00-10:50)		What is Radiation? (Borak)	PhysicsTool Kit (Nelson)		Non-targeted Effects (Azzam)		
10:50 am		*Break*	*Break*	*Break*	*Break*	*Break*	
11:00 am (l1:00-12:00)		Radiation Interactions with Matter (Borak)	Physics 5: Chalk Talk/problems	Physics Homework/ problems (Heilbronn)	Microgravity Effects (Nelson)	Radiation-Induced Cell Signaling (Boothman)	
12:00 pm		*Lunch*	*Lunch*	*Lunch*	*Lunch*	*Lunch*	
1:00 pm (1:00-2:30)		Introduction to Radiation Dosimetry (Borak)	Radiation Chemistry & DNA Damage (Peter O'Neill)	Radiosensitivity & Cell Cycle (Bedford)	Track Structure (Goodhead)	Biology Review (Baulch)	
2:30 pm		*Break*	*Break*	*Break*	*Break*	*Break*	
2:50 pm (2:50-4:10)		Radiobiology I (Hall)	Dose responses, LET & RBE (Held)	Oxidative Stress (Peter O'Neill)	Biomarkers & Biodosimetry (Bill Blakely)	Accelerators (Lowenstein)	
4:10 pm (4:10-5:00)	*7:00 pm Evening Activity with G. Nelson*	Principles of Radiation Protection (Borak)	Radiation detection methods (Borak/Heilbronn)	Chromosome Rearrangements (Bedford)	Space Radiation Protection (Schimmerling)	NSRL Dosimetry (Rusek)	
5:00 pm		Faculty Panel	Faculty Panel	Faculty Panel	Faculty Panel	Faculty Panel	
5:30 pm		6:00 – 7:30 pm Faculty Reception – Lg Conf Room **Catered**	End	End	End	End	

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WEEK 3	June 12	June 13	June 14	June 15	June 16	June 17	June 18
8:30 am (8:30-9:00)		LAB DAY - NSRL (Baulch & Guida)	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	8:30-11:30 LAB Day - NSRL (Rusek) With Beam Time	
9:00 am (9:00-10:00)		Beam Time 9:00 – 2:00	Space Radiation Environment -1 (Patrick O'Neill)	Animal Studies (Weil)	3D Cell Culture Models (Shay)		
10:00 am (10:00-10.50)			Space Radiation Environment -2 (Patrick O'Neill)	Genetics of Animal Studies (Weil)	Biol Countermeasures For Radiat Protection (Shay)		
10:50 am		Break	Break	Break			
11:00 am (11:00-12:00}		LAB	Apoptosis (Kronenberg)	Leukemia (Weil)	Visit to Tandem Van de Graaff (Steski)		
						Lunch	
12:00 pm		Lunch	Lunch	Lunch	Lunch	12:30-2:00 Transgenic Models and New Imaging approaches (Kirsch)	
1:00 pm (1:00-2.30)		LAB	Accelerator Physics and Space Simulation (Zeitlin)	Beamtime Proposal and Mentor Assignments	Model Systems Late Effects, Cancer (Williams)		FREE TIME
				2:00-2:20 Break		2:00-2:30 Break – Go to NSRL	
2:30 pm		Break			Break		
2:50 pm (2.50-4.10)		LAB	Acute Effects (Kennedy)	2:20 – 5:00 pm LAB - Guida / Flow Cytometry & J.Pluth / DNA Damage, etc.	Haematopoietic & Immune Response (Demaria)	2:30-5:00 LAB Day - NSRL (Rusek)	
4:10 pm (4:10-5:00)		Mutagenesis (Kronenberg)	High/Low LET Microbeams (Randers-Pehrson)		Experimental Plan for Tomorrow (Rusek/Guida)		
5:00 pm		Faculty Panel	Faculty Panel	Faculty Panel ??	Faculty Panel	Faculty Panel	
5:30 pm		End		End	End	End	
6:00 pm		Evening Activity – Student Group Dinner					

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WEEK 4	June 19	June 20	June 21	June 22	June 23	June 24	June 25
8:30 am (8:30-9:00)	FREE TIME	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	DEPARTURE
9:00 am (9:00-10:00)		NSRL Simul(GERMcode) (Cucinotta)	Omics Technologies (Story)	Track structure Simulations (Plante)	Chemical Kinetics in Systems Biology (Cucinotta)	Support Team Physics Ppt Presentation	
10:00 am (10:00-10:50)		Tool Kit Practical (Nelson)	Space Flight Measurements (Nelson)	Systems Biology Approaches to Radiation Effects (Barcellos-Hoff)	Radiation Quality & Risk Models (Cucinotta)	Student Team Cell Ppt Presentation	
10:50 am		*Break*	*Break*	*Break*	*Break*	*Break*	
11:00 am (11:00-12:00)		Beam Time Proposals (Nelson)	Beam Time Proposals (Nelson)	CNS Effects (O'Banion)	Cataracts (Blakely)	Student Team Animal Ppt Presentations	
12:00 pm		*Lunch*	*Lunch*	*Lunch*	*Lunch*	*Lunch*	
1:00 pm (1:00-2:30)		Effects on Embryo, Fetus, Transgenerational (Joiner)	Cardiovascular Effects (O'Banion)	Review Time (Nelson & Cucinotta)	Heavy Particle Therapy (Ellie Blakely)	Review Of Beam Time Proposals	
2:30 pm		*Break*	*Break*	*Break*	*Break*	*Break*	
2:50 pm (2:50-4:10)		Dose Rate Effects (Joiner)	Neurogenesis (Fike)	LAB TIME	Prepare Final Presentations & Submit Beam Time Proposals	Review Of Beam Time Proposals	
4:10 pm (4:10-5:00)		Beam Time Proposals (Nelson)	Radiation Effects on Neurons & Stem Cells (Fike)	Work On Presentations	Faculty Panel	Closing Ceremony Med Lg Conf Room *Catered*	
5:00 pm		Faculty Panel	Faculty Panel	7 – 9 PM Dinner Banquet *Catered*			
5:30 pm		End	*Evening Activity – Student / Faculty Cookout*		End	End	