

**NASA SPACE RADIATION SUMMER SCHOOL 2008  
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK  
PROGRAM SCHEDULE**

<b>PRE-WEEK</b>		<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
<b>Time/Date</b>	<b>MAY</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31 MAY</b>
<b>8:30</b>			Memorial Day Holiday		Student arrival at BNL all day Security/Housing	NASA Summer School Opening - Medical Dept. Small Conf. Room. Bldg. 490	Radiobiology Users Training & Exam – Snyder Seminar Rm, Bldg. 911 (John Maraviglia x7343)	FREE Except Backup for Training
<b>8:45</b>						Welcome – Dr. Derek Lowenstein Research Support Bldg. 400 – Conf Rms 1&2		
<b>9:15</b>						User's Center Briefing		
<b>9:30</b>						BNL Photo ID	(8:30-10:30am)	
<b>10:30</b>						Orientation, Computer Accounts Forms, TFCU Check Cashing, Meal Tickets	Issue Film Badge & Iris Scan (Ann Marie Luhrs x7007, 1 <sup>st</sup> Floor Bldg. 911)	
<b>11:30</b>						Training Audit	(10:30am-12:00pm)	
<b>12:00</b>						LUNCH	LUNCH	
<b>13:00</b>						Orientation & Lab Tour (1:00-2:15pm) Elaine Lowenstein	Medical Dept Orientation - Laura Thompson	
<b>14:30</b>						RAD WORKER Part II Classroom training - Medical Dept. Small Conf. Room	BLAF - Animal Facility Tour – MaryAnn Petry (start tour in in Medical Dept. Small Conf. Room)	
<b>16:00</b>						(2:30-5:00pm)		
<b>16:30</b>							Informal Reception Berkner Patio Area	

## NASA SPACE RADIATION SUMMER SCHOOL 2008

## BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK

## PROGRAM SCHEDULE

WEEK 1		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Time/Date	JUNE	1	2	3	4	5	6	7
8:30		FREE	Medical Dept. EB/PG/LH/BS/EF Welcome & Program Goals	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	FREE
9:00			F. Sulzman NASA's Mission & Bioastronautics Road Map	L. Heilbronn/ T. Borak Energy Deposition	L. Heilbronn Neutron Physics	D. Lowenstein Accelerators at BNL	A. Rusek High-LET Physics Lab	
10:00			T. Borak Basic Particle Physics	T. Borak/ L. Heilbronn Doses, Fluence Dose Rates	continued (production, dosimetry, Mars)	L. Heilbronn Accelerator- Based Space Physics	Ion Chambers & Phosphor Imager Scatterers & Collimators	
10:50			BREAK	BREAK	BREAK	BREAK		
11:00			T. Borak Particle Interactions & Track Structure	L. Heilbronn/ T. Borak--Chalk Board Practical	A. Kronenberg Apoptosis	Tour of AGS with Kevin Brown - Bldg. 911-B	Beam Optics & Uniformity Bragg Curve	
12:00			LUNCH	LUNCH	LUNCH		Measurement	
13:00			R. Setlow Radiobiology Concepts	B. Sutherland Molecular DNA Damage & Repair	A. Kronenberg Mutagenesis	A. Kronenberg Genomic Instability	Sample Irradiations	
14:30			BREAK	BREAK	BREAK	BREAK	BREAK	
14:50			M.H. Barcellos-Hoff Integrative Radiation Biology	B. Sutherland Clustered Damage	L. Heilbronn Physics Homework	S. Costes Imaging DNA Foci - VTC Physics Bldg. 510, Rm 2-84	P. Guida Flow Cytometry	
16:00			M.H. Barcellos-Hoff How Do Irradiated Tissues Become Tumors?	S. Bailey Repair of HZE- damaged DNA	A. Rusek High-LET Expt Plan for Friday 6 June	(continued) Until 1630		
17:00			Faculty Panel	Faculty Panel	Faculty Panel	END	END	
17:30			Welcome Reception - Medical Lrg. Conf Rm	END	END			

**NASA SPACE RADIATION SUMMER SCHOOL 2008**  
**BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK**  
**PROGRAM SCHEDULE**

<b>WEEK 2</b>		<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
<b>Time/Date</b>	<b>JUNE</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
<b>8:30</b>		FREE	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	FREE
<b>9:00</b>			Pat O'Neill GCR & SPE	NSRL Cell Lab I Neuron Irradiations Early Neuron Time Points	M. Durante Chromosome Aberrations Part I	J. Shay Telomeres Radiation & Ageing	NSRL Cell Lab M. Durante D. Pignalosa	
<b>10:00</b>			G. Nelson Physics Tool Kit Practical	NSRL Animal Lab and Irradiations P. Guida	M. Durante Chromosome Aberrations Part II	J. Shay Radiation & Animal Models of Lung Cancer	Lymphocyte Irradiations at NSRL	
<b>10:50</b>			BREAK	BREAK	BREAK	BREAK		
<b>11:00</b>			A. Rusek Data Analysis Particle Physics Lab	G. Nelson Low-LET Lab X-ray/ $\gamma$ -ray/H Dosimetry	24 Hr. Neuron & Animal Data Points	B. Sutherland Proton+HZE Effects --48 Hr Data Pts.		
<b>12:00</b>			LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	
<b>13:00</b>			A. Billups/B. Pyatt A. Kim/L. Thompson Exp. Animal Randomize/Weigh	C. Anderson DNA Damage Signaling	L. Townsend Radiation Transport Modeling/Shielding	E. Blakely Cataractogenesis	P. Guida Cell & Animal Data Analysis & Discussion	
<b>14:30</b>			BREAK	BREAK	BREAK	BREAK	END	
<b>14:50</b>			E. Hall Cellular Radiobiology	K. Held Radiation Chemistry	A. Kennedy Biological Countermeasures	E. Blakely Prodromal & Cardiovascular Effects	G. Nelson Tool Kit Homework	
<b>16:00</b>			E. Hall High-LET Radiobiology	K. Held Microbeams & Bystander Effects	G. Nelson Hematopoietic & Immune Responses	G. Nelson/B. Sutherland Planning Particle Biology Expts.	BBQ Dinner (Apt. Picnic Area)	
<b>17:00</b>			Faculty Panel	Faculty Panel	Faculty Panel	Faculty Panel		
<b>17:30</b>			END	END	END	END	Brookhaven Center	

**NASA SPACE RADIATION SUMMER SCHOOL 2008  
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK  
PROGRAM SCHEDULE**

<b>WEEK 3</b>		<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
<b>Time/Date</b>	<b>JUNE</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>
<b>8:30</b>		FREE	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	Medical Dept. Daily Briefing	FREE
<b>9:00</b>			F. Cucinotta Radiation Quality & Modeling	F. Cucinotta Energy Deposition	M. Weil Rad-Induced Blood Cancers	C. Limoli Oxidative Stress	Student Team Physics PPT Presentations	
<b>10:00</b>			D. Hoel Cancer Risk Modeling	E. Benton CR-39/TLD Detectors	G. Nelson Microgravity Effects	C.Limoli Rad Effects on Neurons & Stem Cells	Student Team Cell PPT Presentations	
<b>10:50</b>			BREAK	BREAK	BREAK	BREAK	BREAK	
<b>11:00</b>			D. Hoel Rad Risk of Solid Cancers	G. Nelson Space Flight History	G. Nelson Space Flight Measurements	B.Rabin Rad Effects on Behavior	Student Team Animal PPT Presentations	
<b>12:00</b>			LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	
<b>13:00</b>			M.Durant/D.Pignalosa Chromo. Harvest & Processing	J. Boice Epidemiology of Low Dose Risk	BTP Prep Time	E. Azzam Low Dose & Low-Dose Rate	Review of Beam Time Proposals	
<b>14:30</b>			BREAK	BREAK	BREAK	BREAK	BREAK	
<b>14:50</b>			M.Durant/D.Pignalosa Chromosome Scoring & Analysis	Beam Time Proposal (BTP) Workshop EB/GN	(continued)	Prepare Final Powerpoint Presentations	Review of Beam Time Proposals	
<b>16:00</b>			J. Williams Late Tissue Effects	(continued)	(continued)	Prepare final Presentations Submit BTPs	Review of Beam Time Proposals	
<b>17:00</b>			Faculty Panel	Faculty Panel	END	Faculty Panel	Closing Ceremony – Medical Lrg. Conf Rm	
<b>17:30</b>			END	END	BANQUET – Sea Basin - J. Clark, Medicine in the Space Environment	END		