

NSRSS 2017 May 31-June 24, 2017

| | SUN | MON | TUES | WED | THURS | FRI | SAT |
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| WEEK 1 | | May 29 | May 30 | May 31 | June 1 | June 2 | June 3 |
| 8:30 am | | | | Lawrence Heilbronn arrival Students' arrival at BNL all day Security/Housing (Check into Housing & Begin GUV Center processing if possible) Amy Kronenberg, Greg Nelson Arrival at BNL Commence: Training Audit, Obtain BNL Photo IDs & Computer Access Cash Checks at Credit Union (if needed) | NASA Summer School Opening | | FREE TIME |
| 9:00 am | | | Continue: 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 | | | | | | Complete iris scans and issuing of TLDs (if needed) | |
| 2:00 pm | | | | | <u>Radiological Worker Classroom Training and Exam: 2:00 - 4:30 pm Medical Building</u> | Intro to Beam Time Proposal (Nelson and Kronenberg) | |
| 3:00 pm | | | | | | Elementary Radiation Physics (Norbury) | |
| 4:00 pm | | | | | | Elementary Radiation Biology (Nelson) | |
| 6:00 pm | | | | | 6:00 pm Student Welcome Dinner at MillHouse Inn | | |

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| Week 2 | June 4 | June 5 | June 6 | June 7 | June 8 | June 9 | June 10 |
| 8:30 am | FREE TIME | Medical Dept. Welcome & Program Goals (Kronenberg, Guida, Ward) | Medical Dept. Daily Briefing: Intro to Beam Time Proposals | Medical Dept. Daily Briefing: Intro to Beam Time Proposals | Medical Dept. Daily Briefing | 8:30-11:30 <u>8:30 All start at NSRL</u> <u>First ½ Stay at NSRL</u> for LAB Day - NSRL (Rusek and Buonanno) with Beam Time <u>Second ½ at Medical</u> Intro to Beam Time Proposals, etc. | FREE TIME |
| 9:00 am | | NASA's Mission & Roadmap (Simonsen) | Principles of Radiation Protection (Borak) | Heavy Ions and Shielding Physics, including Neutrons (Heilbronn) | 9:00 – 10:00 DNA Repair I (Wiese) | | |
| 10:00 am | | What is Radiation? (Borak) | Physics Tool Kit (Nelson) | | 10:00 – 11:00 DNA Repair II(Wiese) | | |
| 11:00 am | | <i>Break</i> | <i>Break</i> | <i>Break</i> | <i>Break</i> | | |
| 11:30 am | | Radiation Interactions with Matter (Borak) | Radiation Detection Methods (Borak and Heilbronn) | Physics Homework/problems (Heilbronn) | Radiation Cytogenetics (Bailey) | 11:30-11:45 <i>Return to Medical Dept.</i> | |
| 12:30 pm | | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | 11:45-1:00 Measuring Ion Interactions with Matter (Sivertz and Heilbronn) | |
| 1:30 pm | | Introduction to Radiation Dosimetry (Borak) | Radiobiology 2 (Hall) | Radiation Chemistry & DNA Damage (Held) | Mutagenesis (Kronenberg) | <i>Lunch</i> | |
| 2:30 pm | | Radiobiology 1 (Hall) | Accelerators (Lowenstein) | Dose responses, LET & RBE (Held) | <i>Tour of Van der Graaf</i> | 2:30-5:00 Second ½ at NSRL For LAB Day - NSRL (Rusek and Buonanno) with Beam Time | |
| 3:30 pm | | <i>Break</i> | <i>Break</i> | <i>Break</i> | <i>Break</i> | First ½ at Medical Intro to Beam Time Proposals. | |
| 4:00 pm | | 6:00 pm Evening Activity with G. Nelson and T. Borak | Introduction to Space Radiation (Norbury) | Physics Chalk Talk/problems (Borak and Heilbronn) | Programmed Cell Death (Kronenberg) | Experimental Plan for Tomorrow (Rusek and Guida) | |
| 5:00 pm | 5:00 – 6:00 pm Faculty & Student Reception –Large Conference Room– Catered | | End | End | End | End | |

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| WEEK 3 | June 11 | June 12 | June 13 | June 14 | June 15 | June 16 | June 17 |
| 8:30 am | | Medical Dept. Daily Briefing | LAB DAY - NSRL (Buonanno & Guida) | Medical Dept. Daily Briefing: Beam Time Proposals | Medical Dept. Daily Briefing: Beam Time Proposals | Medical Dept Daily Briefing | FREE TIME |
| 9:00 am | | Biology Experiment Overview for Tomorrow (Buonanno and Guida) | Beam Time 9:00–2:00 | Radiosensitivity and Cell Cycle (Joiner) | Radiation Effects on CNS – acute – incl. Neurogenesis(1) (Limoli) | Low-LET Reference Radiation II (Goodhead) & <i>Tour of Gamma Source</i> (Guida and Jardine) | |
| 10:00 am | | Low-LET Reference Radiation I (Sivertz) | | Effects on Embryo, Fetus, Transgenerational (Joiner) | Radiation Effects on CNS - delayed (2) (Lemere) | Space Radiation Transport & GCR simulation (Slaba) | |
| 11:00 am | | <i>Break</i> | <i>Break</i> | <i>Break</i> | <i>Break</i> | <i>Break</i> | |
| 11:30 am | | Programmed Cell Death (Kronenberg) | LAB | Dose Rate Effects (Joiner) | Behavioral effects (Britten) | HZETRN, OLTARIS, GERM & Monte Carlo codes (Slaba) | |
| 12:30 pm | | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | |
| 1:30 pm | | Animal Studies (Weil) | LAB | Zeitlin – Space Radiation Environment | Buonanno 1:30 – 4:30 pm: LAB In 2 Groups: 1. Flow Cytometry (Guida) 2. DNA Damage, etc. (Angela Kim) (Buonanno) | Track Structure 1 (D.Goodhead) | |
| 2:30 pm | | Genetics of Animal Studies (Weil) | LAB | Zeitlin – Accelerator Physics and Space Simulation | | Track Structure 2 (D.Goodhead) | |
| 3:30 pm | | <i>Break</i> | <i>Break</i> | <i>Break</i> | | <i>Break</i> | |
| 4:00 pm | | Leukemia (Weil) | End (no lectures after lab day) | TRAVEL to Keynote Lecture-Dr. Boice (Catered) | | Physics Practicum RITRACKS/GERM(code use Heilbronn and Slaba) | |
| 5:00 pm | | End | | Banquet 6-9pm Three Village Inn | | | |

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| WEEK 4 | June 18 | June 19 | June 20 | June 21 | June 22 | June 23 | June 24 |
| 8:30 am | FREE TIME | Medical Dept. Daily Briefing – Beam Time Proposals | Medical Dept. Daily Briefing – Beam Time Proposals | Medical Dept. Daily Briefing – Beam Time Proposals | Medical Dept. Daily Briefing | Medical Dept. Daily Briefing | DEPARTURE |
| 9:00 am | | Tool Kit Practical (Nelson) | Operations/Risk/ Exposure (Semones) | Transgenic Models and New Imaging Approaches (Castle for Kirsch) | Beam Time Proposals (Nelson) | Review of Beam Time Proposals (5 min presentation +feedback) | |
| 10:00 am | | Cardiovascular Effects (Boerma) | ISS Dosimetry (Semones) | Cancer Stem Cells (Castle for Kirsch) | Radiation and Tissue Signaling (Hei) | Review of Beam Time Proposals (continued) | |
| 11:00 am | | <i>Break</i> | <i>Break</i> | <i>Break</i> | <i>Break</i> | <i>Break</i> | |
| 11:30 am | | Non-targeted Effects (Azzam) | Hematopoietic and Immune Responses (Williams) | Acute Effects of Exposure (Williams) | Cataracts (Blakely) | Review of Beam Time Proposals (continued) | |
| 12:30 pm | | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | |
| 1:30 pm | | 3D Cell Culture (Grabham) | Microbeams (Harken) | Radiation-induced Cell Signaling (Woloschak) | Heavy Particle Therapy (1) (Blakely) | Student Team Presentations (~20 min each) | |
| 2:30 pm | | Epigenetics (Turker) | Microgravity Effects (Nelson) | Biological Countermeasures (Williams) | Heavy Particle Therapy (2) (Story) | | |
| 3:30 pm | | <i>Break</i> | <i>Break</i> | <i>Break</i> | <i>Break</i> | <i>Break</i> | |
| 4:00 pm | | Modeling Radiation Risks (Brenner) | Space Flight Measurements (Nelson) | Beam Time Proposals (Nelson) | Prepare Final Presentations <u>Beam Time Proposals Due</u> | Closing Ceremony Large Conf Room Catered | |
| 5:00 pm | End | End | | | | | |