

# **NASTAR CENTER SPACE TRAINING PROGRAMS**

## **Public**

- Intro to Space

## **Passengers**

- Basic Suborbital Space Training
- Advanced Space Training
- Space Payload Specialist Training
- Space Suits and Systems Training

## **Pilots and Crew (in development)**

- Launch/Reentry G-Force Training (nominal/off nominal)
- Situational Awareness Training
- Spatial Disorientation
- Upset Prevention and Recovery Training
- Hypobaric (High-Altitude) Training
- Night Vision Training
- Land and Water Survival Training

## **Aerospace Physicians and Flight Doctors**

- Space Physiology, Medicine & Health Training (in development)

## **Mission Control Incident Commander and Ground Crew**

- Emergency Response & Management Training

# INTRODUCTION TO SPACE

## **Aim**

This program provides a fun, interactive and hands-on overview of space culminating in an actual simulated spaceflight experience - perfect for anyone who wants to sample what it's like to be an Astronaut!

## **Content**

- Overview of the History of Space
- Introduction to Commercial Space
- About the Space Environment & Atmosphere
- Acceleration Physiology Overview
- Health and Nutrition in Space
- Space Suit Overview
- Altitude Chamber Demonstration
- Simulated Space Flight Experience in Phoenix Centrifuge

## **Duration**

½ Day

## **Equipment**

Phoenix Centrifuge

## **Prerequisites**

- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

All persons who successfully complete the program based on performance standards will receive a course book, personal souvenir DVD of your spaceflight, and a certificate of completion

## **Registration**

NASTAR Training Center located at 125 James Way in Southampton, PA. 18966, USA. To schedule, please contact us at 866.482.0933 or email us at [info@nastarcenter.com](mailto:info@nastarcenter.com)

# BASIC SUBORBITAL SPACE TRAINING

## **Aim**

This program is designed to provide future space travelers with the core knowledge and skills to become a safe, confident and capable suborbital spaceflight participant.

## **Content**

- Aerospace Environment
- Space Vehicles & Flight
- Motion Environment & Orientation
- Acceleration Forces
- Life Support Systems and Suits
- Space Experience
- Physiological and Psychological Effects
- G Protection, Countermeasures & Skills
- Space Safety and Emergency Procedures
- Maximizing your Spaceflight Experience
- Keeping and Preserving Space Memories
- G-Tolerance Flights and Simulated Space Flights in Phoenix Centrifuge

## **Duration**

2 Days

## **Equipment**

Phoenix Centrifuge

## **Prerequisites**

- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

All persons who successfully complete the program based on performance standards will receive a NASTAR Center certificate of completion and a NASTAR course card

## **Registration**

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# ADVANCED SPACE TRAINING

## Aim

This program is designed to provide enhanced knowledge and in-depth training including emergency preparedness that goes above and beyond the basic space training course.

## Content

- Altitude Physiology
- Spatial Disorientation
- Situational Awareness
- Emergency/Rapid Decompression
- Emergency Procedures & Operations
- Personal Safety & Health
- Aerospace Medicine
- Loss of Control In-flight (LOC-I) Preparation & Flights
- Situational Awareness and Spatial Disorientation Preparation & Flights
- Altitude Chamber Preparation & Flight

## Duration

2 Days

## Equipment

Altitude Chamber  
Gyrolab

## Prerequisites

- Completion of Basic Space Training Course (2 Days)
- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## Certification

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# SPACE PAYLOAD SPECIALIST TRAINING

## **Aim**

This program is designed to provide researchers, scientists, and graduate students with the knowledge and skills to design, plan, and conduct experiments on commercial suborbital spaceflights.

## **Content**

- Space Research Types
- Environmental Considerations
- Payload Safety Considerations
- Vehicle Types and Operating Environments
- Vehicle Payload Interface
- Operational Considerations in Space
- Time/Distracton Management
- Emergency Procedures & Contingency Planning
- Design and Conduct Experiment in Simulated Space Environment
- Simulated Space Flights to Conduct Experiment in Phoenix Centrifuge

## **Duration**

1 Day

## **Equipment**

Phoenix Centrifuge

## **Prerequisites**

- Completion of Basic Space Training Course (2 Days)
- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

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# SPACE SUITS & SYSTEMS

## Aim

This program is designed with a spacesuit manufacturer to provide Space Launch Operators, Pilots, Crew and Passengers with the knowledge and skills necessary to don and use protective life support equipment effectively in both nominal and emergency situations.

## Content

- Protective Equipment & Use
- Altitude Physiology
- Effects of Pressure Change
- Hypoxia & Hyperventilation
- Oxygen & Life Support Systems
- Communications
- Mobility/Maneuverability
- Crew Escape & Emergency Scenarios
- Altitude Chamber 'Flight'

## Duration

1 Day

## Equipment

Altitude Chamber  
Space Pressure Suit

## Prerequisites

- Spacesuit manufacturer to be specified and space suit provided
- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## Certification

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## Registration

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# LAUNCH AND REENTRY G-FORCE TRAINING (NOMINAL/OFF NOMINAL)

## **Aim**

This program is designed to provide Pilots and Crew with the knowledge and skills to successfully counter the G forces experienced during space launch and reentry in both nominal and off nominal conditions.

## **Content**

- Acceleration Forces
- Physiological Effects
- G-LOC Characteristics and Prevention
- Anti-G Straining Maneuvers
- Protective Equipment
- Stress Management
- Physical Conditioning and Diet
- G Tolerance Flights and Simulated Space Flights in Phoenix Centrifuge

## **Duration**

2 Days

## **Equipment**

Phoenix Centrifuge

## **Prerequisites**

- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

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# SITUATIONAL AWARENESS

## **Aim**

This program is designed to provide Pilots with the knowledge and skills to maintain a continuous perception of self and aircraft in relation to environment during flight.

## **Content**

- Situational Awareness Situations
- Conscious and Preconscious Information Processing
- Mitigating Situational Awareness
- Introduction to Crew Resource Management
- Anomalies of Attention
- Forecasting and Executing Perception-Based Tasks
- Simulated Flights in Gyroflight

## **Duration**

1 Day

## **Equipment**

Gyroflight Trainer

## **Prerequisites**

- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

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# SPATIAL DISORIENTATION

## **Aim**

This program is designed to provide pilots with the knowledge and skills to handle visual and vestibular illusions that may be encountered in flight.

## **Content**

- Motion Environment & Orientation
- Vision & Spatial Disorientation
- Orientation, Perception & Illusions
- Spatial Disorientation Management
- Conscious & Preconscious Information Processing
- Spatial Disorientation Training Flights
- Simulated Flights in GYROlab or Gyroflight

## **Duration**

1 Day

## **Equipment**

GYROlab (GL) 1500 or Gyroflight Trainer

## **Prerequisites**

- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

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## **Registration**

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# UPSET RECOVERY & PREVENTION

## Aim

This program is designed to provide Pilots with the knowledge and skills necessary to identify and recover from upset scenarios. The course features hands-on exposure to different Loss of Control In-flight (LOC-I) situations using unique simulation technology.

## Content

- Types and Classes of Aircraft Upsets
- Loss of Consciousness In-Flight Causes and Effects
- Upset Detection and Recognition
- Flight Characteristics Familiarization and Lift Vector Control
- Basic Recoveries to Common/Past Upsets
- Health & Wellness
- Simulated Flights in GL-1500 and/or Phoenix Centrifuge
  - GL-2000 Familiarization Flight
  - Lift Vector Control Exercises
  - Extreme Maneuvering Exercises
  - Upset Demonstration and Performance Exercises
  - Proficiency Assessment Session

## Duration

1 Day

## Equipment

GyroLab (GL) 1500  
Phoenix Centrifuge

## Prerequisites

- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## Certification

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## Registration

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# HYPOBARIC (HIGH ALTITUDE)

## **Aim**

This program is designed for anyone interested in understanding how to identify symptoms of hypoxia and properly handle low-oxygen and rapid decompression situations safely and effectively.

## **Content**

- Aerospace Environment
- Physiological Effects of Pressure Change
- Altitude Physiology (Respiration and Circulation)
- Hypoxia and Hyperventilation & Management
- Oxygen & Life Support Systems
- Time of Useful Consciousness
- Health & Wellness
- Pressure Equalization
- Altitude Chamber Flight
- Rapid Decompression

## **Duration**

1 Day

## **Equipment**

Altitude Chamber

## **Prerequisites**

- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

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## **Registration**

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# NIGHT VISION TRAINING

## **Aim**

This program is designed to provide classroom instruction and practical exercises of techniques to improve vision during low-light conditions.

## **Content**

- Anatomy and Physiology
- Day and Night Vision
- Object Recognition
- Common Night Visual Illusions
- Recognition and Recovery from Visual Illusions
- Effects of Altitude on Night Vision
- Effects of Flash Blindness
- Techniques for Optimizing Seeing
- Night Visual Approaches and Landings
- Flight Into Weather

## **Duration**

1 Day

## **Equipment**

Virtual Terrain Board

## **Prerequisites**

- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

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## **Registration**

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# LAND & WATER SURVIVAL

## Aim

This program is designed with Survival Systems, USA, to provide pilots, crew, and passengers with the knowledge and skills needed to survive unanticipated land or water landings and/or other episodes where rescue may be required.

## Content

- On-Board Hazards and Emergencies
- Fire Fighting in the Cabin/Cockpit
- Evacuation and Escape
- Vehicle Ditching Scenarios & Techniques
- Search and Rescue
- Safety and Survival Equipment Utilization and Deployment
- Effects of Hypothermia and Hyperthermia, Mitigation and Survival
- Survival Psychology
- Personal Rescue Techniques (signaling, flotation devices, etc)
- Fire and Shelter Wilderness Survival Techniques
- First Aid/Medical Scenarios
- Dry/Wet Evacuation Training Through an Emergency Exit on Water

## Duration

2 Days

## Equipment

Water Survival Simulator System  
Outdoors (for land survival)

## Prerequisites

- FAA Class 3 Medical Certificate or equivalent
- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## Certification

All persons who successfully complete the program based on performance standards will receive a NASTAR Center certificate of completion and NASTAR course card

## Registration

NASTAR Training Center located at 125 James Way in Southampton, PA. 18966, USA.

Partnership with Survival Systems, USA may require off-site training. To schedule, please contact us at 866.482.0933 or email us at [info@nastarcenter.com](mailto:info@nastarcenter.com)

# EMERGENCY RESPONSE & MANAGEMENT

## **Aim**

This program is designed to provide Mission Controllers, Flight Directors, Incident Commanders, and/or Ground Crew Personnel with the knowledge and skills necessary to effectively manage emergency scenarios and provide continual procedural training for personnel surrounding a space launch or landing event.

## **Content**

- Emergency Disaster Response & Management
- Multi-Agency Interactions
- Simulation of Real World Threats and Scenarios
- Individual and Team Decision Making
- Organize and Deployment of Resources
- Dynamic Risk Assessment
- Standard & Emergency Operating Procedures
- Ground Crew Resource Management
- Response Operations & Training Procedures

## **Duration**

2 Days

## **Equipment**

Advanced Disaster Management Simulator (ADMS)

## **Prerequisites**

- Trainees are expected to be in a good state of health and physically capable of taking part in all course activities

## **Certification**

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