Climate Change Projection and Analysis Training Course

Professional Development Training Course Outline

Category	Research and Data Analysis	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Climate Change Projection and Analysis is a critical interdisciplinary field combining climate science, data analytics, Earth system modeling, and policy-relevant decision support. With the acceleration of global warming, extreme weather events, sea-level rise, and climate-induced socio-economic risks, organizations and governments increasingly rely on robust climate projections to guide mitigation, adaptation, and resilience strategies. Climate Change Projection and Analysis Training Course provides a future-focused, data-driven foundation in climate projection methodologies using state-of-the-art models, scenarios (SSPs & RCPs), and geospatial analytics aligned with IPCC AR6 frameworks.

The course emphasizes hands-on analytical skills, real-world case studies, and policy-ready insights by integrating climate modeling, uncertainty analysis, risk assessment, and impact forecasting. Participants will gain the ability to interpret global and regional climate projections, assess sector-specific climate risks, and translate scientific outputs into actionable climate intelligence for planning, finance, infrastructure, agriculture, energy, and sustainable development.

Programme Curriculum

Climate Change Projection and Analysis Training Course

Introduction

Climate Change Projection and Analysis is a critical interdisciplinary field combining climate science, data analytics, Earth system modeling, and policy-relevant decision support. With the acceleration of global warming, extreme weather events, sea-level rise, and climate-induced socio-economic risks, organizations and governments increasingly rely on robust climate projections to guide mitigation, adaptation, and resilience strategies. Climate Change Projection and Analysis Training Course provides a future-focused, data-driven

foundation in climate projection methodologies using state-of-the-art models, scenarios (SSPs & RCPs), and geospatial analytics aligned with IPCC AR6 frameworks.

The course emphasizes hands-on analytical skills, real-world case studies, and policy-ready insights by integrating climate modeling, uncertainty analysis, risk assessment, and impact forecasting. Participants will gain the ability to interpret global and regional climate projections, assess sector-specific climate risks, and translate scientific outputs into actionable climate intelligence for planning, finance, infrastructure, agriculture, energy, and sustainable development.

Course Duration

5 days

Course Objectives

1. Understand climate system dynamics and Earth system interactions
2. Interpret IPCC AR6 climate projections and assessment reports
3. Apply Representative Concentration Pathways (RCPs) and Shared Socioeconomic Pathways (SSPs)
4. Analyze global and regional climate model (GCM & RCM) outputs
5. Perform climate data preprocessing and quality control
6. Conduct uncertainty, sensitivity, and ensemble analysis
7. Use downscaling techniques for localized climate projections
8. Assess climate risks, vulnerabilities, and exposure
9. Evaluate sectoral climate impacts (water, energy, agriculture, health)
10. Integrate GIS and remote sensing for climate analysis
11. Translate projections into adaptation and mitigation strategies
12. Support climate-informed policy and investment decisions
13. Communicate climate analytics for stakeholders and decision-makers

Target Audience

1. Climate scientists and environmental researchers
2. Data analysts and climate modelers
3. Government planners and policy professionals
4. Sustainability and ESG professionals
5. Disaster risk reduction specialists
6. Urban and regional planners
7. Energy, water, and agriculture sector professionals
8. Graduate students and early-career climate professionals

Course Modules

Module 1: Climate System Fundamentals

- **GHGs, aerosols, feedback loops**
- Carbon cycle and energy balance
- Natural vs anthropogenic climate variability
- Observational climate datasets
- **Case Study:** Historical warming trends and attribution analysis

Module 2: Climate Models and Scenarios

- Overview of **GCMs and Earth System Models (ESMs)**
- Model resolution and parameterization
- **RCPs vs SSPs** explained
- Model intercomparison projects (CMIP6)
- **Case Study:** Comparing CMIP5 vs CMIP6 projections

Module 3: Climate Data Analytics

- Climate datasets
- Data cleaning and bias correction
- Time-series and trend analysis
- Extreme event indices
- **Case Study:** Temperature and precipitation trend analysis

Module 4: Downscaling and Regional Projections

- Statistical vs dynamical downscaling
- Regional Climate Models (RCMs)
- High-resolution climate projections
- Localized uncertainty management
- **Case Study:** Urban heat island projection for megacities

Module 5: Uncertainty and Risk Analysis

- Sources of projection uncertainty
- Ensemble modeling techniques
- Scenario-based risk assessment
- Probability and confidence interpretation
- **Case Study:** Flood risk under multiple climate scenarios

Module 6: Sectoral Impact Assessment

- Climate impacts on water resources
- Agricultural yield projections
- Energy demand and supply risks
- Public health and heat stress
- **Case Study:** Climate impacts on food security

Module 7: Climate Adaptation and Mitigation

- Adaptation planning frameworks
- Mitigation pathways and net-zero targets
- Climate resilience and nature-based solutions
- Cost-benefit and trade-off analysis
- **Case Study:** National Adaptation Plan (NAP) evaluation

Module 8: Climate Policy, Finance, and Decision Support

- Climate-informed policy design
- Climate finance and risk disclosure (TCFD)
- ESG and sustainability reporting
- Decision-support tools and dashboards

- **Case Study:** Climate projections for infrastructure investment

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price

23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com