

Certified Pool Operator (CPO) Class Syllabus

Chapter 1: Pool & Spa Management

- Why is running a swimming pool so complex? What work goes into effective management?
- Risk management: negligence, standard of care, duty of care, recordkeeping (p.6)

Chapter 2: Regulations & Guidelines

- What is the difference between a regulation and a guideline or standard?
- What types of regulations or standards apply to the swimming pool industry?

Chapter 3: Essential Calculations*

- Useful conversions (p.26 – right side for metric)
- “Water Factor” conversion (p.27)
- Surface area & water volume: rectangle & circle pool only (p.29)
- Average depth volume examples (p.28, 31)
- Missing water volume example (p.32)
- Multi-depth, circular pool volume example (p.34)

Chapter 4: Pool Water Contamination

- How do we prevent recreational water illnesses (RWIs) spreading in our swimming pools?
- Fecal contamination response: formed, unformed/diarrhea (p.40), vomit & blood (p.41)
- Understand when it is necessary to close a swimming pool for public safety.

Chapter 5: Disinfection

- Why is a disinfectant residual always required in swimming pool water?
- Characteristics of disinfectants chart (p.52)
- Free available chlorine (FAC or FC), Total Chlorine (TC), Combined Chlorine (CC)
- Define disinfection (p.288) vs. oxidation (p. 291)
- Cyanuric Acid & stabilized disinfectants (p.55)
- Secondary or supplemental forms of disinfection, e.g., UV, ozone, chlorine dioxide (p.58-60)

Chapter 6: Water Balance

- Understand the five factors of water balance: pH, TA, Ca, Temp & TDS
- Saturation Index (SI) examples (p.68-70)
- Blank worksheet (Appendix B-5, p.262)

Chapter 7: Pool & Spa Water Problems

- Chemical dosing examples (p.72 – 75)
- Water Chemistry Adjustment Guide (Appendix B-2, p.259)
- Blank worksheet (p.260)

- Combined chlorine (CC) and chloramine prevention (p.76 - 78)
- Breakpoint chlorination (BPC) (p.77 - 78)
- Other types of water quality problems (p.79 – 86)

Chapter 8: Chemical Testing

- Four main types/methods of water testing

Chapter 9: Chemical Feed & Control

- Types of mechanical feeders: liquid, erosion & gas
- Essential components of chemical feed & control systems (Illustration 9-5, p.114)

Chapter 10: Water Circulation

- Essential components of circulation systems (Illustration 10-1, p.117)
- Turnover Rate (p.118) & Flow Rate (p.119) examples

Chapter 11: Pool & Spa Filtration

- What do filters remove? (Illustration 11-1, p.136)
- Filter Area, Flow Rate & Filter Media Rate examples (p.138)
- Types of filters: sand, diatomaceous earth (DE) & cartridge
- Troubleshooting filters (p.221-224)

Chapter 12: Heating & Air Circulation

- Types of heat (energy) loss from swimming pools (p.148-150)
- Heat gain equipment: gas/electric heaters, heat pumps, heat exchangers, solar heating, etc.
- Air circulation characteristics of indoor swimming pools (p.155 – 157)

Chapter 13: Spa & Therapy Operations

- What additional safety hazards & operational challenges do warm water pools pose?
- Essential components of a spa or hot tub (Illustration 13-1, p.165)
- Hot water chemistry (p.165) & Other Hot Water Concerns (p.167)
- Water replacement (p.168 - 169)

Chapter 14: Facility Safety

- Understand the rescue & first aid equipment, barriers, safety covers, electrical safety, signage, facility rules, chemical storage, staff training, etc. to operate a safe swimming pool
- Entrapment (p.180 – 182) & Appendix C – 1: The Virginia Graeme Baker Pool & Spa Safety Act (VGBA) (p. 273)

Chapter 15: Keeping Records

Chapter 17: Troubleshooting

Chapter 16: Maintenance Systems

Chapter 18: Facility Renovation & Design

Appendix A: Sample Checklists & Logs (p.235 – 255)

Appendix B -1: Water Chemistry Guidelines (p.258)

Glossary (p. 285 – 294)

Index (p. 295 – 300)