# Learning outcomes for the Biosafety Level 1 training course

| | Unit | Element | By the end of this unit the delegate will have: |
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| 1 | Roles and responsibilities | 1A | an awareness of the criteria for the appointment of local BSOs |
| | | 1B | a thorough knowledge of the responsibilities, duties and limitations of their role. |
| | | 1C | an understanding of the function of Biosafety committees, in order to be able to participate as a member and keep appropriate records. |
| 2 | Legal | 2A | an understanding of the difference between common and statute law and the implications of each. |
| | | 2B | an understanding of sections 2, 3, 7 and 8 of HASAWA and other relevant legislation such as the EPA and EA with regard to biological laboratories, with particular regard to disposal of material, emissions and escape from containment of organisms or micro organisms and the acquisition and disposal of sensitive material. Animal Health Act, Plant Health Order, Animal Scientific Procedures Act, ATCSA |
| | | 2C | an awareness of occupiers' and vicarious liabilities and the difference between insurable and non insurable losses. |
| | | 2D | an understanding of the scope of the regulations under Element 2B that apply to biological laboratories {see accompanying list for guidance} |
| | | 2E | an awareness of the nature of work that requires a licence for the import, export or use of any plants, animals or plant or animal tissue and be aware of sources of information |
| | | 2F | an understanding of the status of secondary legislation and standards with regard to best practice and legal compliance. |
| | | 2G | an awareness of the need for responsible science (code of conduct) and work that requires ethical approval (HTA, A(SP)A, Informed Consent etc ) |
| | | 2H | an understanding of the regulatory roles of HSE, DEFRA, EA, HO, CTSA's etc and powers of inspectors. |

Learning outcomes for the Biosafety Level 1 training course.

| | Unit | Element | By the end of this unit the delegate will have: |
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| 3 | Disinfection/sterilization | 3A | a thorough knowledge of how disinfectants work. The ability to select effective disinfectants against the organism under various conditions of use, including dealing with spills. |
| | | 3B | an understanding of autoclave types and selection criteria. A thorough knowledge of their use and both direct and indirect validation techniques |
| | | 3C | an understanding of UV, dry heat, and filtration, and irradiation techniques and the applications and limitations of each. |
| | | 3D | an understanding of fumigation agents and processes and the importance of validation |
| 4 | Waste disposal and Transport of hazardous materials | 4A | a thorough knowledge of the legal requirements and best practice for the disposal of all types of biological / health care waste. |
| | | 4B | an understanding of the regulations covering the transport of biological agents / materials |
| 5 | Hazards and risks | 5A | the ability to define the terms hazard and risk and give relevant examples of each, including the relevance of routes of exposure in a laboratory. |
| | | 5B | the ability to conduct risk assessments for biological risks, and environmental assessments which include consideration of people at risk. |
| | | 5C | the ability to evaluate risk assessments for work involving biological agents including with materials which may contain them, and consequences for risk assessment of techniques involving propagation or concentration |
| | | 5D | a thorough knowledge of the basis for hazard categorization of biological agents and implications for containment. |
| | | 5E | a thorough knowledge of both physical and managerial control measures including PPE, aerosol minimisation and containment, percutaneous injuries etc applying the hierarchy of control. |
| | | 5F | an understanding of allergens and their control in the biological laboratory setting |
| 6 | Genetic Modification | 6A | an ability to apply the GMO(CU) regulations and the requirements for laboratory containment, management controls, record keeping and notification. |
| | | 6B | an understanding of the risk assessment process required under the GMO(CU) regulations |
| | | 6C | an awareness of the issues of contained use versus deliberate release including gene therapy |
| | | 6D | an awareness of the principles of containment for transgenic, infected or exotic animals and plants. |

| | Unit | Element | By the end of this unit the delegate will have: |
|---|---|---|---|
| 7 | Equipment | 7A | a thorough knowledge of applications of the different classes of microbiological safety cabinets and types of autoclave. A thorough knowledge of the biosafety issues relating to typical laboratory equipment, such as incubators and centrifuges. The ability to advise users and contract managers on standards and codes of practice (particularly with respect to the siting and choice of microbiological safety cabinets, incubators, centrifuges and autoclaves). |
| | Plant, equipment and servicing | 7B | An awareness of the selection criteria for competent persons/ organisations/ contractors/ service providers to ensure the application of suitable biosafety measures. |
| | Facilities/design | 7C | an understanding of the design requirements for biological laboratories, including the need to address security issues. |
| | | 7D | an understanding of the principles of air handling systems in containment laboratories and their monitoring, measurement and maintenance |
| 8 | Laboratory management | 8A | an understanding of the principles of good laboratory management including the importance of effective liaison with local laboratory managers, PI's and facility managers to ensure that adequate and sensible / practical rules are in place. |
| | | 8B | an awareness of other key safety issues, such as lone working, stress, ergonomics |
| | | 8C | an understanding of where notifications, records of usage, training and occupational health monitoring are required. |
| | Bio-security | 8D | an understanding of restrictions placed on the use of Schedule 5 materials and others and of keeping appropriate records of holdings, locations and personnel with authorized access: also to be able to advise others of the requirements. |
| 9 | Policy/manual development | 9A | an ability to contribute to the development of policy and codes of practice |
| | Auditing/inspection | 9B | an ability to participate in audits and inspection, keep appropriate records and contribute to the overall management plan of the institutions. |
| | Influencing skills | 9C | an understanding of the techniques available to deal with personnel at all levels with the appropriate degree of firmness, understanding and sensitivity. |
| | Incident and emergency procedures | 9D | an understanding of internal and external reporting requirements. An ability to liaise with others in the development of procedures for dealing with emergencies, including decontamination. An understanding of the principles of incident investigation and the ability to participate in the process. |
| | Occupational health, health surveillance, immunisations | 9E | an understanding of when and where occupational health screening, monitoring and prophylactic treatment is necessary or indicated. |
| 10 | Learning and development | 10A | an ability to communicate to small groups by oral presentation: prepare clear concise audiovisual and support material. |
| | | 10B | an understanding of identifying training needs for self and others |

## Glossary of terms

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|---|---|
| A(SP)A | Animals (Scientific Procedures) Act 1986 |
| ATCSA | Anti-terrorism, Crime and Security Act 2001 |
| BSO | Biological Safety Officer or Biosafety Officer |
| CTSA | Counter-Terrorism Security Adviser |
| DEFRA | Department for Environment, Food and Rural Affairs |
| EA (agency) | Environment Agency |
| EA (legislation) | Environment Act 1995 |
| EPA | Environmental Protection Act 1990 |
| GMO(CU) | Genetically Modified Organisms (Contained Use) Regulations 2000 and amendments |
| HASAWA | Health and Safety at Work etc Act 1974 |
| HO | Home Office |
| HSE | Health and Safety Executive |
| HTA | Human Tissue Act 2004 |
| PI | Principal Investigator |
| UV | Ultra-violet |

## Element 2D – Indicative list of **Regulations and Orders recommended for inclusion in legal awareness section:**

Management of Health and Safety at Work Regulations 1999

GMO(CU) Regulations 2000 plus amendments

Control of Substances Hazardous to Health Regulations 2002 plus amendments

SAPO (Specified Animal Pathogen Order 1998)

IAPO (Importation of Animal Pathogens Order 1980)

IATA/ICAO/ADR (International Air Transport Association/ International Civil Aviation Organization/ European agreement concerning the international carriage of dangerous goods by road (adr)

Plant Health Order (England 2005; Scotland 2005; Wales 2006; Northern Ireland 2005)

Home Office Animal Procedures (published in conjunction with A(SP)A)

RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995)