

James Madison University

FIELDWORK

General Safety Guide

for

Participants on

Supervised Courses and Field Courses Field Trips

**PLEASE COMPLETE THE QUESTIONNAIRE
(APPENDIX 1) AND
RETURN TO THE FIELD TRIP LEADERS**

November 2009

Safety Statement

**It is unacceptable to incur
any avoidable accidents
during fieldwork activities**

This is achieved by:

**Staff and students exercising
a "duty of care" at all times**

Appropriate planning and risk assessment

**Staff and students undertaking fieldwork to be
fully informed as to the hazards**

**Reporting and investigating any accidents
that do occur**

Promoting a "safety culture" at all times

CONTENTS

	Page
INTRODUCTION	1
GENERAL PRINCIPLES	2
Advice to Students	2
General Precautions	2
Protective Clothing	3
Head Protection	4
Hand Protection	4
Leg and Feet Protection	4
Eye Protection	4
TRANSPORT	5
EMERGENCIES	5
Accidents	6
Medical Aspects and First Aid	7
Hypothermia	7
Unconsciousness	8
THE TERRESTRIAL ENVIRONMENT	8
Introduction	8
Mountains, Uplands and Cliffs	8
Quarries and Rock Faces	9
Caves, Mines and Tunnels	9
Agricultural Land	
Warm Weather	10
THE MARINE ENVIRONMENT	11
The Coast	11
INSURANCE	12
ACCIDENT REPORTING	12

APPENDICES

APPENDIX 1 Student Accident Investigation Report	
13	
APPENDIX 2 Field Trip Information Form	14
APPENDIX 3 4x4 Vehicle Advice	15
APPENDIX 4 Contact Names and Addresses	16

INTRODUCTION

Fieldwork is one of the most difficult areas in which to ensure a safe working environment. There is a clear line of responsibility from the university through the Department to the academic staff member leading the field trip. In fieldwork, after the initial choice of the location of the exercise, there can be little control of the actual worksite or the weather; therefore, careful risk assessment of every site is required. The Fieldtrip Leader is usually the senior academic member of staff present and is responsible for all aspects of safety. In this Safety Guide, "student" applies to all attendees of field courses (Master's students, Industry Clients, etc.) unless specifically mentioned otherwise.

Experience and sound judgement are essential requirements. Without knowledgeable leadership or the right equipment and clothing, an unpleasant experience can turn into tragedy. The staff member in charge of a fieldwork expedition is not expected to be infallible either in law or by the university; he is only expected to take reasonable care. For example, many accidents occur by persons falling off cliffs or down quarry faces, but it would be quite unreasonable and impracticable to fence every mile of cliff face in the country. If a staff member advises a student that the edge of a particular cliff face is dangerous and that it should be avoided; he is doing all that he can reasonably be expected to do, and if the student thereafter goes over the cliff edge, it is unlikely that the member of staff could be held responsible. If, on the other hand, a fieldwork leader is careless, offhand or negligent and does not pay due care and attention to those he is in charge of and an accident happens, he may be required to prove his/her innocence in court. Both staff and students have a "Duty of Care" to each other.

Although the ultimate responsibility for matters of safety lies with the university, in terms of the university safety policy, Department Heads and others in overall authority are responsible for putting into effect most of the university's legal obligations. It is they who must ensure that any person about to supervise or undertake fieldwork is not only trained in the basic techniques and practices appropriate to his work and appreciates the potential hazards and dangers that might arise, but also passes on an appreciation of the safety practices down the line authority to the individual worker.

In practice, the leader of a group of students carrying out fieldwork will most often be a member of the academic staff who is not a Head of Institute (definition?) and, while the university and department head are obliged to provide sufficient resources for the fieldwork task to be successfully completed, it is for the individual staff member to ensure that he discharges his duty to the best of his ability. Before accepting this duty, any shortcomings in his abilities or training should be recognized and, if appropriate, remedial training provided. Because of the onerous responsibility borne by members of staff as leaders of fieldwork expeditions, it is unreasonable for them to be coerced into accepting such duties. For example, willingness to lead a fieldwork expedition does not imply willingness to learn how to drive a minibus.

The student must bear in mind that the onus for his/her personal safety lies with the individual. All students also have a responsibility to the group to be mindful of the safety of colleagues.

It should be noted that while not all the environments covered in this Safety Guide will be experienced during the field trips, hill walking and other outdoor activities in your leisure time could also be hazardous. THINK SAFETY at all times.

GENERAL PRINCIPLES

Advice to Students

All students taking part in fieldwork exercises have a responsibility to adhere to sensible standards of behavior. Students should be aware that fieldwork activities have inherent hazards which staff members will seek to minimize by imposing appropriate safety precautions. However, the potential dangers make it imperative that students behave responsibly in order to reduce the risk of accidents.

They are specifically advised to:

1. Obey all safety instructions given by party leaders or supervisors. Anyone not conforming to the standards required may be dismissed from the field course or trip.
2. Stay with the party except by clear arrangement with the leaders and observe instructions for reporting after completion of work; report any personal injury or illness to the university as soon as possible using the JMU Student Accident Investigation Report (Appendix 1).
3. Wear adequate clothing and footwear for the type of weather and terrain likely to be encountered as advised by the field trip leader.

Field trip leaders should refuse to allow ill-equipped students on their field trips , since they have a responsibility to ensure that students observe the provisions regarding personal safety. Prior to the trip, a JMU Field Trip Information Form should be completed by all field trip participants (Appendix 2). Directives in this Safety Guide are mandatory upon students.

General Precautions

In later sections of this Safety Guide , there is advice on the safety precautions to be taken during specific fieldwork activities. It is important, however, that irrespective of the activity, certain basic rules should be observed. These are:

1. The likely safety problems or risks need to be identified and discussed and the nature and purpose of the field trip clearly understood by all concerned.
2. The work should be planned carefully bearing in mind the experience and training of those taking part and the activity and the nature of the terrain to be covered. Take care not to over-estimate what can be achieved.
3. The number of students who can be safely supervised by a member of staff will vary according to the type of work being undertaken and its location. Where large numbers of students are involved or the work is over an extended period of time, or particularly if work is being undertaken outside the Commonwealth of Virginia, then more generous staffing should be provided than is necessary for day trips to less hazardous areas. It is for the department head in conjunction with the field trip leader to define the appropriate staff/student ratio, bearing in mind all the necessary factors.

4. Students must notify the field trip leader of any physical handicap (e.g. asthma, epilepsy, diabetes, allergies, etc.) so that any modifications to the program can be taken. Students must carry a sufficient supply of any necessary medication.
5. Verify that all necessary emergency equipment is available and functioning properly. This equipment may include, but not be limited to, first aid kit, fire extinguisher, flashlight, communications devices, and roadside signalling and warning devices. Field trip leaders should be knowledgeable in their use. All members of the party should know what to do in the event of an accident or emergency.
6. The personal protective equipment and clothing of all participants should be suitable for all weather conditions and terrain likely to be met during the course. These items may include, but not be limited to, footwear, hard hats, eye and ear protection, bug repellent, sunscreen, water, and food. Students should be informed of general trip requirements in advance.
7. All participants should be able to give and know the appropriate response to the international distress signals. See later.
8. Avoid touching any machinery or equipment in quarries, mines, factories, building sites or fields. Special care should be taken on old army ranges or practice grounds. No explosives, detonators etc. found on sites may be touched. Any found should be reported to the party leader immediately. On no account should students climb on cliffs, quarries or trees unless expressly instructed by a supervisor. In such case full and appropriate safety equipment must be worn. See later.
9. Always obtain the permission of the landowner or official department before entering any area. Do not use railways as footpaths.
10. Always be aware of land use: hunting lands should be avoided during applicable hunting seasons and precautions taken on adjoining lands such as the wearing of blaze orange.
11. Students must not work alone without the express permission of the group leader. Immediately alert the trip leader if someone becomes separated from the group.
12. It is advisable that all members of the party are able to read a map and use a compass, when working in remoter areas. These must be available for each independent group.
13. The weather forecast should be checked, and preparations for inclement weather should be made in advance. A constant lookout for changes should be kept. If the weather deteriorates do not hesitate to turn back. s.
14. Do not go into the field without leaving a Field Trip Itinerary (Appendix ??) and preferably a map reference showing the exact route and work location and expected time of return.
15. At the conclusion of field work, all equipment should be checked, cleaned, and properly stored. Any non-functioning equipment or vehicles should be repaired or reported for repair.

Protective Clothing

Fieldwork usually involves workers in protracted periods of time away from their base. They must therefore ensure in advance that suitable clothing is available at the time of the proposed field excursion and that it is in good condition. There are four main functions for protective clothing.

1. To combat exposure due to adverse weather conditions, particularly cold and wetness.
2. To protect the worker from physical and chemical hazards in the environment.
3. To combat biological hazards.
4. To act as a marker in recall or rescue operations.

For those who disregard precautions, the onset of bad weather can mean acute physical discomfort, loss of direction, growing anxiety, exhaustion and even collapse. In general, warm, windproof and waterproof clothing should be worn with adequate protection for head, ankles, wrists and hands where heat loss is greatest. Virginia weather is notoriously unpredictable and the effects of wind are of considerable importance, being often underestimated, particularly in and around coastal waters and on high mountains or open upland.

In warm, dry weather, waterproof clothing should be carried in a pack. In these conditions, a soft wool pullover or sweater under a windbreaker is suitable.

Head Protection

The head should be protected against rain and wind. In adverse weather conditions, considerable body heat can be lost from the head and this fact must be seriously considered in planning any outside activity, to protect the head and eyes to avoid sunstroke or snow blindness where appropriate.

Helmets (hard hats), **provided by the university**, must be worn in appropriate situations. Wear a safety helmet when visiting old quarries, cliffs, , trenches, mines, or where there is any risk from falling objects. It is obligatory to do so when visiting working quarries, mines and building sites.

Hand Protection

Gloves are often a hindrance, especially when collecting data and making notes, but warm hands are important to well-being and should be protected where possible with fingered thermal flexible material.

Leg and Feet Protection

Waterproof clothing on the trunk often leads to water draining onto the legs, especially at the knees. The collection of data can also require a kneeling position in wet areas. Such conditions can cause legs to become excessively wet, accompanied by considerable heat loss and discomfort. Jeans or denim trousers may be unsuitable, becoming cold and clammy when wet. Wear waterproof pants when necessary, with trousers of material which does not become very cold when wet.

In general, boots to support the ankle are best. They should also have a good grip. This is most important on rocky shores where slippery and sharp surfaces can be very dangerous. Sports shoes may be unsuitable for fieldwork.

Eye protection

If it is necessary to hammer rocks in the field, wear safety glasses or goggles. Note that many outcrops visited by the university are in protected areas where hammering is not allowed.

TRANSPORT

Care should be taken to minimize the risk of accident during transport of personnel and equipment to the site and during the fieldwork exercise itself.

The group leaders should be aware of the travel arrangements made by every member of the group, both before initial assembly and subsequently at the start of each working day. Group members must be told how to contact the group leaders in the event of unavoidable changes in transport plans. Group members must stay with the group except when a clear arrangement has been made with the group leader.

Group members must ensure that they understand and comply with instructions for reporting after completion of work. Group leaders must make sure that the group is complete at the end of each stage of a trip. Solo transport over rough country or in isolated areas should be avoided whenever possible, particularly when severe weather is anticipated or when any special danger might be encountered (e.g. in small boats or over coastal areas).

Whenever solo transport over rough or isolated country is unavoidable, information about the intended travel route should be left with a responsible person at base, ideally with a map showing precise details. When vehicles are parked in remote areas and the solo driver has to walk out of sight of the vehicle, written information concerning the intended route and destination should be left clearly visible from outside the vehicle.

Whenever public transport is employed, group members should ensure that any equipment or materials carried comply with the carrier's Regulations and are stored under safe conditions both for normal movement and in the event of any foreseeable emergency.

University vehicles or hired vehicles for university fieldwork should only be driven by personnel acting with the express permission of the appropriate department head. Driving any vehicle on university business should be at the discretion of the member of staff involved, even if all other safety criteria are fully met. This permission should only be granted when the driver concerned has been adequately familiarized with all the vehicle controls and the location of the first aid kit and fire extinguisher (which should be carried in all vehicles) and is known to have the requisite level of experience. No pets or unauthorised persons such as hitch-hikers may be carried in university vehicles.

Drivers should satisfy themselves on a daily basis that their vehicle is in a safe condition with respect to tire pressure and tread, brakes, lights, windscreen washer and wipers and steering. Any defects that develop should be reported immediately to the group leader. A vehicle in a potentially unsafe condition should not be used. No alcohol may be consumed while in charge of a vehicle. There are some special features that 4x4 vehicles require and 4x4 experience is a pre-requisite for driving on organised field trips (Appendix 3). Academic Staff driving 15-

passenger vans or larger (hired or University) must undergo a university driving test in order to be covered by the university's insurance.

Drivers must make sure that all materials and equipment carried are stored in a safe fashion for both routine transport and in any emergency. Under no circumstances should the vehicle be overloaded. Goods projecting at the front or rear should be appropriately marked.

University vehicles may be used for official business only. The driver may be held liable for any accident, damage or injury that may occur during a deviation from the field trip's objective.

EMERGENCIES

The main potential hazards in fieldwork are exposure due to abnormally severe conditions and/or unsuitable clothing or equipment and accidents caused by insufficient knowledge, weather, carelessness or misfortune. If careful attention is paid to the recommendations of this Safety Guide, only the latter should be of consequence. However, even the effects of gross misfortune may be made less severe as a result of careful forethought. In an extreme case, life may be saved.

The following recommendations are intended to serve as minimum information and as a guide to action required prior to the commencement of fieldwork to minimize risk to personnel.

The group leader must ensure that all participation personnel know what to do in the event of an emergency. Any statement of procedures should include the names of participating members with first aid training, the location of the nearest telephone and the names, locations and telephone numbers of the nearest doctor and hospital. Make sure that all group members are aware that emergency assistance may be obtained by dialling 911. Where appropriate, a cell phone should be carried by the fieldtrip leader.

Accidents

In case of an accident, the following procedure should be followed:

1. The party leader must act quickly but calmly to ensure that further danger to the injured person and other members of the party is minimized.
2. First aid should be given to the injured person as soon as possible.
3. The injured person should be made as safe and as comfortable as possible. Provide adequate insulation from the ground. Spare clothing and sleeping bags etc. (if available) should be used to protect the extremities. If the injured person cannot be moved to shelter, a shelter should be built around him.
4. The next course of action will depend on factors such as the nature of the injuries, the condition of the remainder of the party, the time available, weather conditions and the availability of assistance. If assistance is required then the police should be informed by mobile phone or from the nearest telephone. In the latter case, the person reporting the accident should stand by the telephone in case further information is required and to

guide rescuers to the scene of the accident. The following information should be given to the police or the rescue party.

- (a) The position of the injured, (grid reference and nearest main feature).
- (b) The number of injured personnel.
- (c) The nature of their injuries.
- (d) The time of the incident.
- (e) Is the injured person likely to be moved from this place?
- (f) If so, by what route?
- (g) Does the injured need a stretcher?
- (h) The leader's name and contact telephone number of home base.

If it is decided to move the injured person without outside assistance, it should be recognized that improvised stretchers are of short-range value only. It would be exhausting and possibly dangerous to attempt to carry an injured person for long by this method. Their main use is for moving an injured person to a more sheltered position or in moving someone with relatively minor injuries or, of course, if it is the case that moving by any method is preferable to leaving the injured person where he is: this is for the party leader to decide.

Medical Aspects and First Aid

The group leader should establish that those participating on the course do not suffer from any illness or a medical condition that could expose them or others to undue risk during the excursion (see Appendix 2). Examples of such conditions include chronic asthma, epilepsy, certain heart conditions, pregnancy (for some types of fieldwork) certain types of diabetes or history of other serious illness, particularly recent. While such persons and those with a sensory or mobility disability are not de facto to be prevented from taking part in fieldwork, it would be foolhardy to ignore an increased potential for injury where this risk exists. It will also be important to make any special arrangements to ensure that a disabled party member finds a fieldwork course as enjoyable and educationally valuable as his able-bodied colleagues. Allergies to common drugs (e.g. aspirin and penicillin) should be noted.

All personnel involved in field studies should be immunized against tetanus. For some overseas visits, valid immunization against other diseases which might be encountered, such as typhoid, cholera and yellow fever, may be advisable even if not legally required. The group leader, following consultation with the appropriate university officials as advised by the department head should establish that all participating personnel are aware in good time of recommended vaccinations and of the time required to attain immunization.

A substantial first aid kit should be carried on all field trips. In addition, individuals should carry antiseptic wipes and a small number of adhesive dressings. Foot blisters are a common cause of suffering and delay when much walking is necessary and they may be avoided by the application of a plaster when the irritation is first felt.

Ideally the group leader and one other member of the group should be familiar with basic first aid. It should be remembered that, although first aid may serve as a useful temporary measure, expert medical advice must always be sought at the first possible opportunity following an accident.

Hypothermia

Apart from falls, drowning etc. the most serious hazard that can occur in field activities is hypothermia. This is caused by the exposure of the body to progressive cooling as a result of severe weather conditions. It can occur at any time on the hills or seas and anytime of year. Unless the symptoms are recognised and preventative action taken immediately, it can rapidly result, in extreme cases, in death.

The symptoms are:

1. A slowing down of pace or effort which may alternate with sudden outbursts of energy.
2. Aggressive response to advice, or other irrational behavior.
3. Abnormality of vision, stumbling and slurring of speech.
4. Shivering and tiredness.

Not all symptoms need be displayed, and their onset can be rapid.

If the victim is urged to greater effort or left unprotected, the consequences may be serious

The action to be taken when encountering these symptoms is as follows:

1. Stop as soon as possible and find the best available shelter out of the wind.
2. Insulate the casualty against further heat loss until help can be obtained. This can be done with additional clothing (even over wet garments) or a large plastic bag (a survival bag), which should be pulled up over the victim and tied at the neck. Additional insulation around the head (whilst allowing a clear airway) is required.
3. Get help quickly.

Some field studies are carried out on water, where similar severe exposure can be experienced. The temperature of open waters north of the Chesapeake Bay is rarely high enough to be sure that total immersion will not be accompanied by some degree of shock. Water displaces the insulating layer of air between the body and clothing and may quickly lead to hypothermia. Immersion in water below about 72° accompanied by physical effort is likely to increase the net heat loss from the body as can winds or wet clothing. It is important to avoid total immersion and to keep clothing dry and windproof.

It is recommended that if at all possible a warm sweet drink be given to the victim. Under no circumstances should alcoholic beverages be given.

Unconsciousness

Loss of consciousness may be caused by serious injury or illness. Immediate and correct action is vital if the casualty is not to die by asphyxiation due to blockage of the airway. Unless there is good reason to suspect serious neck or spinal injury, the casualty should be moved into the 'casualty' or 'recovery' position. This is lying face down with head tilted to the right and with right arm and left leg in a half crooked position to provide a measure of lateral stability. If possible one person should be detailed exclusively to monitor the casualty's breathing. If breathing stops, immediate intervention by mouth-to-mouth resuscitation is needed. Sensible action in handling an unconscious casualty will save his life, even when severe injury is present, but asphyxia can and does kill those with quite minor injury who have been temporarily rendered senseless.

THE TERRESTRIAL ENVIRONMENT

Introduction

Areas of low to moderate relief and altitude are the commonest environments in which fieldwork is carried out in Virginia. Most of the precautions which should be taken in such areas have been outlined in the preceding sections. Additional safety requirements may be required in specialized locations such as mountainous areas, beaches and estuaries, cliffs, mines and excavations, and these are discussed in the following sections.

Mountains, Uplands and Cliffs

In an area regarded by the group leader as dangerous, participants must work at least in threes and groups must never allow one or two persons to split off from the main group. Any small group moving more than a short distance from the main party or working consistently out of sight of it should be regarded as a separate group. Solo fieldwork should not be attempted unless there is no practical alternative. In this case, try to work in an area adjacent to that of a colleague and to make contact at intervals so as to lessen the period of exposure following an accident. Walkie-talkie radios may be appropriate in these situations.

Do not attempt to climb rock faces or steep or dangerous slopes if alone and take no risks on ledges. Where work has to be carried out in such situations or below rock faces, a hard hat must be worn. Any essential climbing must be carried out with a companion, using ropes and proper belaying procedures and safe climbing techniques.

Clearly the clothing and equipment consistent with safe working in these areas will have to be to a much higher standard as compared with lowland operations to combat the greater extremes of climate which may be encountered. As in so many situations, knowing someone who has experience of what to expect can be invaluable and every opportunity should be taken to consult colleagues and friends who have worked in such areas.

Quarries and Rock Faces

This section contains guidance on all forms of excavation including quarries, open cast workings, sand, gravel, clay pits and civil engineering excavations in progress but excluding narrow trenches which should be avoided at all costs.

Before entering active excavations, always contact the person in charge. In the case of quarries and pits, managers and owners are responsible for the safety of workers and visitors who, in turn, are legally obliged to comply with safety instructions while on site. You must acquaint yourself with and take account of any specific local hazards and danger warning procedures such as blasting times. (Be suspicious of periods when everything becomes quiet during normal working hours!). In the case of civil engineering excavations, responsibility for the safety of workers and visitors lies with the person in charge of the site. You are legally obliged to comply with his directions and any local safety rules while on site. In all cases, you must notify your safe departure at the time of leaving.

Within active excavations you must wear a hard hat and footwear with protective toecaps. High visibility clothing is recommended.

Caves, Mines and Tunnels

The safety of workers and visitors in working mines of all sorts and to tunnels in the course of construction is the responsibility of the person in charge, commonly the owner's manager or agent. Tunnels in the course of construction must not be entered without first contacting the person in charge nor without adequate preparation and appropriate equipment. It is highly unlikely that mines or tunnels will be entered on filed excursions.

Agricultural Land

Generally agricultural land has few hazards for the field worker beyond what is normally encountered in other terrestrial habitats, but sometimes a range of biological, chemical and physical hazards may be present. These include dangerous animals and chemical hazards from fertilizers, insecticides etc.

WEATHER

Warm Weather

North American weather can be extremely deceiving, especially for novice outdoorsmen. Conditions can change dramatically within a few hours and vary depending on the elevation and location. The lapse rate change in temperature is 3.5° Fahrenheit per 1000 feet of elevation and a body of water can hold the surrounding air temperature at several degrees different from the temperature a few miles inland. When combined with the wind chill effect a novice can be left woefully ill-equipped for an expedition.

Field trip leaders should be prepared to guide participants in proper selection of clothing, footwear and equipment for the expedition to be undertaken as well as advising participants in what conditions may be encountered.

Final preparations at the time of departure into the bush should include but not be limited to: inform owners of accommodation where you are going and when you intend to return and pack a copy of the list of important contacts given in Appendix 4.

General Field precautions

1. Summer sun exposure can be dangerous: hats, sunglasses and sun-block are essential.
2. Summer temperatures can result in heatstroke, rest if feeling unwell.
3. Summer nights at higher altitudes can be cold enough to induce hypothermia wear warm and wind resistant clothing.
4. **Dehydration** is a major concern in hot weather. Carry 2-3 litres per person per day into the field. Take regular drinks from the cooler .
6. Risk of **sunburn and sunstroke can be avoided**: use sunscreen liberally; wear a hat or scarf and long sleeved shirt if fair-skinned. Signs of sunstroke are sickness and giddiness - take fluids immediately and rest in shade.
7. **Poisonous snakes** are a danger. Snake bite kits should be carried, but these are not necessarily effective. Avoid being bitten by making noise and proceeding with caution. Avoid bushy areas and wear stout boots. **If someone is bitten, keep them calm (to minimize blood flow from the wound) and go immediately to a doctor.** It is important to identify the snake so the right anti-toxin can be applied. Also avoid Black Widow Spiders and Scorpions!
8. **Flash floods** occur during summer storms. Dry river beds can become raging torrents in a very short time. It is not unusual for water levels to rise 2m in half an hour. Keep an eye on the weather to try to avoid being caught. If caught, park the vehicle high, away from the river bed (flash floods can sweep a 4x4 vehicle away!). Muddy lithologies become treacherous after heavy rain - you will have very little control - even in 4-wheel drive. Driving over wet tracks causes rutting and should be avoided where possible.
9. Summer electrical storms can be unpredictable. **Lightning strikes** are frequent. Move to low ground and keep away from isolated trees. Don't touch metal equipment.
10. Keep a record of your insurance details.
11. Carry out fieldwork in pairs, using a radios or cell phones if necessary.

There are also a number of environmental issues specific to sensitive areas:

1. Avoid stepping on small cacti and the microbiotic soils. Place feet on bare rock where possible. Avoid making a well-worn path. Avoid making new tyre tracks.
2. **"Take only photographs, leave only memories"**
3. Any major fieldwork undertaking needs permission of the Bureau of Land Management. Also permission is needed to enter National or State Parks. A licence is required before any sample can be removed.

THE MARINE ENVIRONMENT

The Coast

Careful preparation is important before undertaking work in coastal areas. The period available for work is usually limited by the tides and knowledge of the state of the tide and of the time is essential. Because of the time limitations, dangers of becoming lost or sustaining injury during

the work are greater. Unless there is no practicable alternative, the work should not normally be carried out alone in these environments.

Estuaries, mud flats and salt marshes are in general very exposed and can be very cold. The limitations on working time due to tides may also result in work having to be carried out early in the morning or late in the evening. Suitable clothing and footwear are therefore important.

While knowledge of the day's tides is essential, allowance must also be made for local conditions and changes in the weather (for example, a change to an onshore wind, which can bring forward the time of high tide). When the terrain is flat, the tide advances quickly and work should be planned to allow ample time for exit before the flood tide starts to advance across the work area.

Current tide tables local conditions; neap or spring tides will also need to be consulted. Immediately before departure, obtain a detailed local weather forecast.

Inform owners of accommodation where you are going and when you intend to return. A list of important contacts is given in Appendix 4.

General Field precautions :

1. Especially in summer, UV light is intense. Hat, sunglasses and sun-block are essential.
2. Summer temperatures in excess of 90° can be dangerous! If possible, stay out of the sun in these conditions. Rest if feeling unwell.
3. **Dehydration** is a major concern. Carry 2-3 litres per person per day into the field. Take regular drinks from the cooler.
4. Risk of **sunburn** is high. Use sunscreen liberally; wear a hat or scarf and long sleeved shirt if fair-skinned. Signs of sunstroke are sickness and giddiness - take fluids immediately and rest in shade.
5. Keep a record of your insurance details.
6. Carry out fieldwork in pairs, using a radios or cell phones if necessary.

INSURANCE

During fieldwork, students on university-led field trips associated with university courses, are covered by the university's liability insurance. A list of all students attending the field trip **must** be provided to the department head. For overseas fieldtrips the students will have to take out additional travel insurance (this may be included in the field trip fee at the discretion of the university).

For attendees on field trips run who are not employees or students of the university; they will be expected to sign an "Acknowledgement of Risk" form and be covered by their own (i.e., companies) insurance.

ACCIDENT REPORTING

In the unfortunate case that an accident occurs, a “Student Accident Investigation Report” Form must be completed and forwarded to the department head and JMU Risk Management. This will form the basis for any investigation and ensure that the circumstances surrounding the accident can be avoided on future trips. It is recommended that several fieldtrip attendees complete independent records of the incident.

APPENDIX 4 Contact Names and Addresses

JMU Public Safety:

Police Communications Email - pd_dispatch@jmu.edu

Emergencies On-Campus - **6911**

Emergencies Off-Campus - **540.568.6911**

Non-Emergencies - **540.568.6913**

Alternate Emergency Line - **540.442.6911** (Used if campus phone lines are not working)

Fax - **540.568.3308**

Voice Mail System Direct from Off-Campus - **540.568.2211**

Voice Mail System Direct from On-Campus - **8.4411**

JMU Office of Risk Management:

**James Madison University
Office of Risk Management
131 West Grace Street, MSC 6703
Harrisonburg, VA 22807
Phone: 540-568-7812
Fax: 540-568-2878**