



# Earthquake Safety Manual



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●Emergency Contact

Name:

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Tel.:

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E-mail:

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●Assembly Point

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●Evacuation Area When Assembly Point is Unsafe

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# Earthquake Preparedness

In April 2016, the Kumamoto earthquake struck twice with a seismic intensity of seven on the Japan Meteorological Agency (JMA) seismic intensity scale, causing severe damage in Kumamoto prefecture and surrounding areas. The earthquake affected Kyoto University facilities and research projects in the region, including the Aso Volcanological Laboratory. During the approximately twenty-year period since the Great Hanshin earthquake in 1995, Japan has been struck five times by earthquakes with a seismic intensity of seven, and twelve times by earthquakes with a seismic intensity of six-upper. This means that, on average, an earthquake with a seismic intensity of a six-upper or more has occurred every year somewhere in Japan.

The Kinki region of Japan is currently considered to be undergoing a seismically active period. This includes the predicted Nankai Megathrust earthquake, which, it has been speculated, may be of magnitude eight or more with a 70% probability of occurring within the next thirty years. Kyoto City's earthquake damage predictions have suggested that an earthquake with a seismic intensity of seven may occur around the area of Kyoto University's Yoshida and Katsura Campuses.

## Earthquake Danger Estimates of Kyoto University Campuses

Campus	Intensity	Main Earthquake
Yoshida	6-upper to 7	<i>Hanaore</i>
Uji	6-lower to 6-upper	<i>Ikoma, Ujigawa, Obaku, Nankai Megathrust</i>
Katsura	7	<i>Kashihara-Mizuo</i>

\* Source: Disaster Prevention Plan of Kyoto City and Uji City

\* Other premises and facilities are dealt with in accordance with the disaster plans of their relevant municipal governments.



High earthquake resistance

Low earthquake resistance



### 6-Upper on the JMA seismic intensity scale:

- It is impossible to move without crawling. People may be thrown through the air.
- Most unsecured furniture moves, and is more likely to topple over.
- Wooden houses with low earthquake resistance are more likely to lean or collapse.
- Large cracks may form, and large landslides and massif collapses may be seen.



High earthquake resistance

Low earthquake resistance

### 7 on the JMA seismic intensity scale:

- Wooden houses with low earthquake resistance are even more likely to lean or collapse.
- Wooden houses with high earthquake resistance may lean in some cases.
- Reinforced-concrete buildings with low earthquake resistance are more likely to collapse.

Based on its risk management plan, Kyoto University is implementing measures such as enhancing the earthquake-resistance of existing buildings and stockpiling food and drinking water. It is also important for individuals to take their own precautions in preparation for earthquakes, in order to minimize potential damage.

## Everyday Precautions in Campus Life

### Confirm the following items to ensure that you are ready to take appropriate action in the event of an earthquake:

1. Check the seismic capacity of the building you are in (see the university's website for details on the seismic capacity of buildings).
2. Identify two or more evacuation routes (corridors and staircases) in the building
3. Confirm the locations of fire extinguishers, automatic fire alarms (transmitters and receivers), indoor and outdoor fire hydrants, and the location and method of use of any other fire-extinguishing equipment.
4. Confirm the locations of safety equipment and devices, such as first-aid kits, AED devices, hard hats, and flashlights.
5. Confirm the locations of the nearest medical facilities including the office of the Environment, Safety, and Health Organization (Kyoto University Infirmary and Kyoto University Hospital)
6. Confirm how to report your safety (see P5).
7. Confirm how to register your safety information using the Safety Confirmation System.
8. Confirm the assembly point and earthquake evacuation area designated by your department.

### Always observe the following everyday rules to enable a swift response to earthquakes:

1. Do not place or leave any items in front of emergency exits, fire doors, or fire shutters.
2. Do not place or leave any items around fire extinguishers, automatic fire alarms, indoor fire hydrants, fire escape equipment, and rescue entrances for firefighters.
3. Do not move fire extinguishers from their designated locations.
4. To ensure that evacuation routes are clear, keep rooms organized and tidy, and do not leave any items in pathways, doorways, corridors, or emergency exits.
5. High-pressure gas cylinders should be stored upright in cylinder stands that are firmly fixed to both the wall and floor. Both the upper and lower portions of the cylinders must be securely fastened with chain straps that are connected to the stands. Alternatively, the cylinders should be stored in appropriate cylinder cabinets.
6. Take appropriate safety measures to prevent bookshelves, furniture, and experiment equipment from moving or toppling over in an earthquake, such as firmly fixing them to wall or floor areas. Do not place any heavy items etc. which may cause hazards on top of bookshelves, lockers, or other furniture.
7. If you are using dangerous chemicals, take appropriate safety measures to prevent containers from falling, toppling, or colliding in an earthquake. Do not store incompatible chemicals in close proximity to each other to avoid potential explosions or fires due to spillage or mixing if the containers are broken.
8. Do not park your bicycle, motorcycle, or car in any areas other than designated parking areas.
9. Participate proactively in fire and disaster drills and training sessions organized by the university.

**Emergency items you can carry with you every day:** Small-sized flashlight, whistle, portable radio, etc.

**Emergency items you can keep in your laboratory:** Flashlight, running shoes, spare pair of spectacles, medicine, emergency food, gloves, surgical masks, portable radio, mobile phone battery charger, etc.

### Your own preparation for an earthquake, even in your home, can minimize damage and save your life.

(Please see Ref. 1: Readiness in the Home and Ref. 2: Disaster Message Services)

- Take measures to prevent furniture from toppling over and objects from falling
- Store emergency food, water, and other living necessities
- Prepare an emergency bag
- Discuss with your family and friends in advance the ways that you will confirm each other's safety

# In the Event of an Earthquake

- **Protect yourself and ensure that you do not cause fires** —
- **Personally inform the university of your safety** —
- **Be considerate of persons who may need assistance (disabled person, the elderly, foreigners, etc.)** —

## When you feel a tremor indoors or receive an early earthquake warning

1. **When an earthquake occurs:** If you feel an earthquake or receive an earthquake early warning, immediately stop conducting your experiment, etc. If the earthquake or warning occurs during a class, follow the instructions of the faculty or staff members.  
(See Ref. 3 Earthquake Early Warnings)
2. **Ensure your safety:** Follow the 1-2-3 safety procedure: Drop, Cover, and Hold On.  
See Ref. 4 Safety Action 1-2-3: Drop, Cover, and Hold On)
3. **Check to see if anyone is injured:** Once the tremors have subsided, check to see if anyone with you has been injured.
4. **Prevent fires:** To prevent fires, once any tremors or shaking have subsided, persons near any equipment involving fire or flames should turn off all flammable sources. For example, gas and fuel valves should be closed and power sources should be switched off.



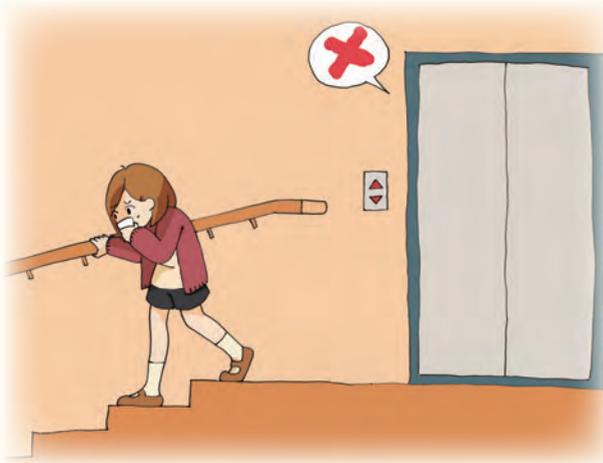
## If someone is injured or in need of help

1. **Ask for assistance:** If there are persons requiring assistance or first-aid treatment, ask people nearby to assist.
2. **Prioritize assistance efforts appropriately:** In order to provide help efficiently and facilitate a higher survival rate, prioritize giving assistance to persons in life-threatening conditions or circumstances. For situations that require the help of many people, cases requiring the fewest helpers should be prioritized.
3. **If a fire breaks out:** If a fire breaks out in the rescue area, it is generally advisable to extinguish the fire first before trying to rescue people.
4. **First aid:** After moving any injured parties to a safe place, provide first-aid and life-saving treatment using first-aid kits or AED (automated external defibrillator) devices in the building.
5. **Take the injured to a medical facility:** If necessary, take the injured to a medical office on campus such as the Environment, Safety, and Health Organization (Kyoto University Infirmary) or to Kyoto University Hospital, or the nearest emergency medical facility.



## When evacuating a building and gathering information about the injured and missing people

1. **Decide whether to evacuate the building:** Once the tremors subside, confirm the safest route, and evacuate the building calmly. (If you are in an earthquake-resistant building with a very low probability of damage or collapse, do not rush out of the building. If you are in a building which is not earthquake-resistant, and which has a high probability of serious damage and collapse, pay attention to the earthquake's aftershocks and evacuate the building as quickly as possible.)
2. **Be considerate when evacuating:** Please give special consideration and assistance to people in need of help when evacuating, such as persons with disabilities, foreigners, the elderly, infants and young children, pregnant women, and hospital patients.
3. **How to evacuate:** Leave the building by walking down the stairs. (Do not use elevators.)
4. **Protect yourself while evacuating:** Cover your mouth and nose with a handkerchief to avoid inhaling dust and be cautious of falling objects. If a fire breaks out nearby, keep your body low and cover your mouth and nose with a wet handkerchief to prevent smoke inhalation.
5. **Close doors to prevent fires:** If it is difficult to extinguish a fire in a room, Ensure that all people have evacuated the rooms, and then close the room doors, fire doors, and fire shutters to prevent fires from spreading after evacuation.



6. **Watch out for falling objects:** When exiting a building, watch out for falling objects such as shattered glass and roof tiles (glass can scatter horizontally up to half the distance that it falls).

7. **Evacuate outdoors:** Evacuate to the temporary assembly point designated by your department. If the assembly point is unsafe, evacuate to an evacuation area in accordance with the instructions of university faculty and staff members.

8. **Take a roll call:** Cooperate with efforts to gather information about the injured and missing, and the number of evacuees. If requested, cooperate with fire extinguishing and rescue activities. When the situation is under control, register your safety information on the Safety Confirmation System.

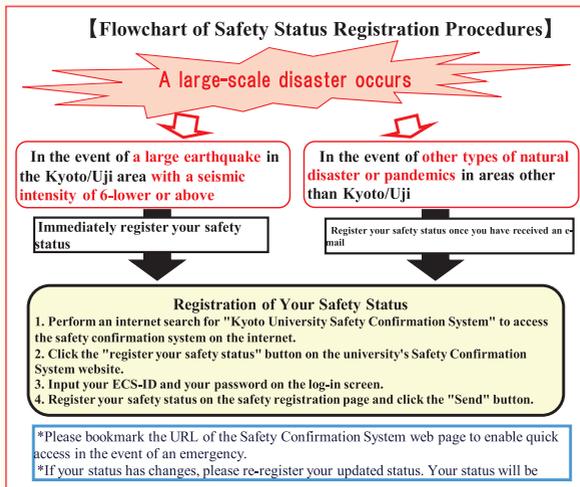
**If you are in an elevator:** Most of the elevators in university buildings are programmed to automatically stop at the nearest floor in the event of an earthquake with a seismic intensity of four or more. If you are in an elevator during an earthquake and the elevator automatically stops, leave the elevator immediately and evacuate the building using the stairs. If the elevator stops between floors, etc., and you are confined in the elevator, use the intercom or another method (banging on the door, etc.) to call for help, and wait for assistance.

## Use the Safety Confirmation System to report your safety

1. Access the Safety Confirmation System through your smartphone, PC or tablet to register your safety information.
2. If you cannot register your safety information using the Safety Confirmation System, inform your department of your safety by telephone or e-mail.

### Action the University will take if you do not self-report and your safety cannot be confirmed:

Your department will attempt to confirm that you are safe by means such as the following: by telephoning or e-mailing you directly, by checking for messages on disaster message services (see Ref. 2), by asking you to contact the university via the university or department website, by asking you to contact the university via Kyoto University's Liberal Arts Syllabus Information System (KULASIS), or by making inquiries with your family or acquaintances.



## In case of a fire or other emergencies occur

### General Guidelines

- If you encounter a fire or other emergency situation after an earthquake, alert the people in the vicinity, and activate a nearby automatic fire alarm.
- If possible, call 119 (fire/emergency department) to report the fire or emergency. If there is no telephone available, cooperate with others to report the situation to the nearest fire department in person. Then, inform your department of the details of the fire or emergency, including the location and damage situation, as quickly as possible.

### In case of a fire

- People in the vicinity of a fire should try to extinguish it using fire extinguishers, indoor/outdoor fire hydrants, or other equipment (after first ensuring their own safety).
- If fires occur in multiple locations, any fires which block evacuation routes should be extinguished first.

### How to use a fire extinguisher

1. If the fire spreads and is difficult to extinguish, ensure that all people have evacuated the room, and then close the door, fire door, and shutters to prevent the fire from spreading. You should then leave the vicinity.

#### **In case of the emission of hazardous or toxic substances, or other special emergencies**

- People in the vicinity of the area of danger, where the hazardous or toxic substances spread, should immediately close the doors and windows of the room, turn off all gas and water outlets, turn off air-conditioning and ventilating fans, move away from the doors, walls, and windows, and follow the instructions of faculty members or anyone present with relevant specialized knowledge or skills.

#### **In the event of an incident involving radioactive materials**

- In the event of (or if there is danger of) a problem involving radioactive materials problem, immediately report it to your department and to the radiation protection supervisor, and follow their instructions.

1



2



3



## Prevention of secondary disasters: do not enter restricted areas

Damaged buildings that have been determined to be dangerous, or other dangerous areas, such as areas contaminated by hazardous or toxic substances, will be roped-off or signposted as a restricted area. Ensure that you do not enter such areas.

## Suspension and resumption of classes

1. Classes scheduled to be held in buildings struck by an earthquake with a seismic intensity of 6-lower or greater will be suspended.
2. In other cases, the suspension of classes will be decided in accordance with relevant regulations and on the availability of public transportation.
3. Once public transportation services have resumed, the period of class suspension may be determined based on other criteria, depending on the damage and restoration conditions of university facilities and the surrounding area. Information regarding the resumption of classes will be posted on the university website and the university syllabus information system, KULASIS. All students are required to confirm the relevant information and act accordingly.

## Precautions when returning home

If large numbers of people simultaneously attempt to return home on foot in a situation in which public transportation is unavailable and roads are closed to traffic, it can cause traffic congestion and serious disruptions. Such a situation poses a safety risk to those endeavoring to return home, and can also block access to the disaster area for emergency vehicles such as fire engines. For these reasons, students are required to wait in a safe place and refrain from returning home until the safety is ensured. The university will provide students with a space in which to stay, food and water, and information updates. Students who are unable to return home on foot are required to take appropriate action in accordance with the instructions of their department and the emergency response headquarters.

## (Ref. 1) Preparedness in the Home

### Simple Steps to Take in the Home to Be Prepared for an Earthquake



It is every person's responsibility to protect themselves from natural disasters. Personal preparedness for an emergency at home is vital, even for those living in earthquake-resistant buildings.

#### Take measures to prevent furniture from toppling over and objects from falling.

In the Great Hanshin Earthquake in 1995, many people were crushed to death by fallen furniture. Furniture is certain to fall over when a large earthquake occurs, and so it is necessary to take preventive measures to secure it in place.

- ✧ Fix furniture and large electrical appliances securely to walls or ceilings to prevent them from toppling over.
- ✧ Do not place bookshelves and other furniture around beds.
- ✧ Apply anti-shatter film to glass windows and the glass in furniture to prevent the spreading of shattered glass.
- ✧ Keep a flashlight, slippers, and a whistle within reach.

#### Store emergency food, water, and other living necessities

- ✧ Store a supply of food and water (enough for at least three days, preferably enough for a week) to be used in the case of an emergency that disrupts access to such essentials.
- ✧ Store food and water using a "rolling stock" method: use and replenish rations regularly to prevent them from exceeding their expiration date. This will also familiarize you with the food resources that will be available to you in times of emergency.
- ✧ Prepare three liters of water per person per day to be used as drinking water. Also, keep water in your bathtub for household use, such as toilet flushing.
- ✧ Prepare heat sources, including a portable gas stove and gas cylinders.

Rice (including vacuum-packed boiled rice), biscuits, chocolate, vacuum-packed foods, canned foods, long-life fruit and vegetables (onions, potatoes, bananas, apples, oranges, etc.), toilet paper, tissue paper, lighters and/or matches, candles, portable gas stove (with gas cylinders), etc.

#### Prepare an emergency bag

If your home is damaged or destroyed in a disaster, you will need to take refuge in a municipal shelter. To be prepared for such a possibility, it is advisable to prepare a bag packed with emergency supplies. The bag should weigh approximately 15kg for man and 10kg for woman (if the emergency supplies are heavier than this, store the excess at home as secondary supplies to be retrieved as needed).

- ✓ **Primary emergency supplies:** The supplies needed when you take refuge immediately.
- ✓ **Secondary emergency supplies:** To be retrieved as needed until relief supplies are delivered.

Food and water, valuables (bank book, health insurance certificate, personal seal, cash), first-aid supplies and household medicine, mobile phone, charger portable radio, flashlight, battery, hard hat (or hat or safety hood), clothes, utility items and utensils (lighter, gloves, paper cups, can opener, plastic sheet, bottle opener, wet tissues, etc.), and other necessary items (rain gear, cold weather gear, and other necessities depending on the season and weather. If you have children, you may need baby formula, a feeding bottle, disposable diapers, etc.

## Discuss with your family and friends in advance the ways that you will confirm each other's safety

- ✓ Obtain hazard maps from the municipal government, and discuss your plans in the event of an emergency, including the locations of the assembly point and evacuation routes.
- ✓ Decide on the methods that you will use to confirm each other's safety using the Disaster Emergency Message Dial, the Disaster Message Board Service, and other services.  
(See Ref. 2: Disaster Message Services)

## (Ref. 2) Disaster Message Services (Confirming the Safety of Family and Friends)

When a large earthquake, typhoon, torrential rain, or other disaster occurs, it becomes difficult to contact people by phone as telephone connections in the affected areas may be congested due to a flood of calls. In order to avoid such congestion and enable people to confirm the safety of family members and friends, all communication companies provide disaster message services for land-line phones, mobile phones, and the internet.

### Types of disaster message services:

- Disaster Emergency Message Dial (171): Voice message services for safety confirmation. Accessible from telephones.
- Disaster Message Board: Text message service for safety confirmation. Accessible from telephones by using their internet functions.
- Disaster Message Board (web171): Text message service for safety confirmation that uses a telephone number as an access code. Also features a function that allows the user to send messages to pre-registered e-mail addresses and phone numbers.

### When the services are available:

- In the event of a disaster, such as an earthquake with a seismic intensity of six-lower or greater.

### Trial versions and opportunities to practice using the services:

- You can practice these services on designated "trial" days: the 1<sup>st</sup> and 15<sup>th</sup> of every month, the 1<sup>st</sup> to 3<sup>rd</sup> of January, during Disaster Preparedness Week, and Disaster Preparedness and Volunteers' Week.

\*

### Disaster Emergency Message Dial (171)

Disaster Emergency Message Dial is a voice message service for safety confirmation. (NTT East and West) You can record messages of up to 30 seconds long, and can store up to 20 messages. You can also perform cross-searches with the Disaster Message Board (web171) to find people you are trying to contact.

#### ● To record a message reporting your safety status:

**Dial 171 + 1# + Your phone number (including the area code) in the disaster area → Record your message → Dial + 9#**

1. Dial "171" and follow the recorded instructions.
2. Dial "1#" (If you want to add a PIN number, dial "3" and enter a four-digit PIN number.)
3. Enter your home phone number (or the phone number of a person that you want to contact) in the disaster area.
4. Record your message of up to 30 seconds long.

#### ● Play back a message by a person that you want to contact:

**Dial 171 + 2# + The person's phone number (including the area code) → Play back the message**

1. Dial "171" and follow the recorded instructions.
2. Dial "2#" (If you want to add a PIN number, dial "4" and enter a four-digit PIN number.)
3. Enter your home phone number (or the phone number of a person that you want to contact) in the disaster area.
4. Play back the message recorded by the person that you want to contact.

## Disaster Message Board (Accessible from mobile phones and smartphones in the disaster area)

The Disaster Message Board is a text message service for safety confirmation using the internet function of mobile phones.

You can select a preset description of your current situation and add a comment of up to 100 double-byte characters long. You can store up to 10 messages on the service.

### ● Register a message (in the event of a disaster, a link to the "Disaster Message Board" service will be provided on the top page of your phone company's website.)

1. Access the Disaster Message Board and select the "Register" option.
2. Select a preset description of your current situation, and enter a comment.
3. Press the "Register" button to complete the process.

### ● Check registered messages

1. Access the Disaster Message Board service and select the "Confirm" option.

\*You can also confirm messages on your computer, etc.

NTT Docomo: <http://dengon.docomo.ne.jp/top.cgi>

KDDI (au): <http://dengon.ezweb.ne.jp/>

SoftBank / Y!mobile: <http://dengon.softbank.ne.jp/>

2. Enter the mobile phone number of the person whose status you want to confirm, and press the "Search" button.
3. Select the message you want to check from the list of messages.

## Disaster Emergency Message Board (web 171) (Accessible from PCs, smartphones, and mobile phones)

The Disaster Emergency Message Board (Web 171) is a text message service for safety confirmation that uses a telephone number as an access code. (NTT East and West)

You can select a preset description of your current situation and add a comment of up to 100 double-byte characters long. You can store up to 20 messages on the service.

A function that enables the user to send messages (artificial voice messages) to pre-registered e-mail addresses and telephone numbers is also available. You can also perform cross-searches with the Disaster Message Board (web171) to find people you are trying to contact.

### ● Register or confirm messages

1. Access the URL: <https://www.web171.jp/>
2. Enter the phone number for which you want to register or confirm messages, and click the "Post" or "Read" button.
3. Post: Select a preset description of your current situation, add a comment, and click the "Post" button.  
Read: After reading another person's message, you can post a message to them in reply. The procedure is the same as for registering your own message.

\* You can also send messages by pre-registering e-mail addresses (up to 10 addresses) and one phone number.

\* You can search for messages across the services provided by different mobile phone companies.

## Disaster Voice Messaging Service (Accessible from smartphones and some mobile phones)

The Disaster Voice Messaging Service is a safety confirmation service that can be used to deliver voice messages from smartphones or mobile phones. The messages are delivered by packet communication and can be up to thirty seconds long. To use the service, it is necessary to install the relevant application.

## Combined Search of All Safety Confirmation Messages

It is possible to perform a single combined search of all of the safety confirmation messages that are posted on the various disaster message boards of different companies and organizations using the name and telephone number of the person whose safety status you wish to confirm as the search terms.

- > NTT Resonant's J-anpi: <http://anpi.jp/top>
- > Google Person Finder: <https://www.google.org/personfinder/japan>



## (Ref. 3) Earthquake Early Warning

When an earthquake with a seismic intensity of 5-lower or greater has been predicted, the Earthquake Early Warning System sends advance notifications to all mobile phones (including smartphones and PHS phones) in the areas in which the tremors are expected to occur. The notifications include the expected time of occurrence and estimated seismic intensity of all anticipated tremors with a seismic intensity of four or more.

If you receive an earthquake early warning notification, remain calm and take appropriate measures to secure your personal safety.

\*As soon as an earthquake occurs, this system detects the earthquake (P-wave, preliminary tremors) near the hypocenter, automatically calculates the location, scale, and expected intensity of shaking, and sends out a warning seconds or more before the onset of strong shaking (S-wave, principal motion) caused by the earthquake. In locations near the hypocenter, however, a warning may not arrive before the onset of strong shaking

## (Ref. 4) The 1-2-3 Safety Procedure: Drop, Cover, and Hold On

"Drop, Cover and Hold On" describes an effective safety action that can save lives in the event of an earthquake. The three-step procedure is recommended by the Japan Shakeout Network.

In the event of an earthquake, you may only have a few seconds to protect yourself from falling objects. To ensure that you can quickly take the appropriate action to protect yourself in an emergency, it is important to conduct drills to become familiar with the safety procedures, so that they can be performed automatically.

- In the event of an earthquake while you are indoors:  
Immediately perform the 1-2-3 Safety Procedure: "Drop, Cover, and Hold On."
  1. DROP to the ground and stay low (to avoid being falling over due to strong tremors.)
  2. Take COVER under a sturdy desk or table nearby to protect your head. If no shelter is available nearby, cover your head with your arms or a bag.
  3. HOLD ON until the tremors stop.



- In the event of an earthquake while you are outdoors:  
Immediately find a safe place away from buildings, trees, utility poles, and electric wires, and perform the 1-2-3 Safety Procedure: "Drop, Cover, and Hold On."  
Stay in the safe area until the tremors stop.
- In the event of an earthquake while you are driving a vehicle:  
Pull the vehicle over in a safe open place, wear the seat-belt, and stay in the safe area until the tremors stop.



## **Earthquake Safety Manual (For Students)**

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General Affairs Department, Kyoto University