weapons. The flight trajectory of a ballistic missile can be divided into four phases: boost, post-boost, midcourse and terminal.

Research and development of ballistic missile technology resembles that of civilian space launch programs. The dual-nature of this technology and the desire to control ballistic missile proliferation prompted states to adopt the Missile Technology Control Regime (MTCR).

The United States divides missiles into four range classes.

Intercontinental Ballistic Missile	ICBM	over 5500 kilometers
Intermediate-Range Ballistic Missile	IRBM	3000 to 5500 kilometers
Medium-Range Ballistic Missile	MRBM	1000 to 3000 kilometers
Short-Range Ballistic missile	SRBM	up to 1000 kilometers

The Soviet and Russian military developed a system of five range classes.

Strategic	over 1000 kilometers
Operational-Strategic	500 to 1000 kilometers
Operational	300 to 500 kilometers
Operational-Tactical	50 to 300 kilometers
Tactical	up to 50 kilometers

The 1987 Treaty on the Elimination of Intermediate-Range and Shorter-Range Missiles [INF Treaty] required elimination of all Soviet and American longer-range intermediate nuclear force (LRINF) missiles with ranges between 1,000 and 5,500 kilometers, as well as shorter-range intermediate nuclear force (SRINF) missiles with ranges between 500 and 1,000 kilometers. The MTCR initially focused on missiles with ranges greater than 300 kilometers, the range of the Soviet SCUD missile.

Delivery systems vary in their flight profile, speed of delivery, mission flexibility, autonomy, and detectability. Each of these considerations is important when planning a chemical or biological attack.

Ballistic missiles have a prescribed course that cannot be altered after the missile has burned its fuel, unless a warhead maneuvers independently of the missile or some form of terminal guidance is provided. A pure ballistic trajectory limits the effectiveness of a chemical or biological attack because, generally, the reentry speed is so high that it is difficult to distribute the agent in a diffuse cloud or with sufficient precision to ensure a release under the shear layer of the atmosphere. In addition, thermal heating upon reentry, or during release, may degrade the quality of the chemical or biological agent. US experience has shown that often less than 5 percent of a chemical or biological agent remains potent after flight and release from a ballistic missile without appropriate heat shielding.

A ballistic missile also closely follows a pre-established azimuth from launch point to target. The high speed of the ballistic missile makes it difficult to deviate too far from this azimuth, even when sub-munitions or other dispensed pellets are ejected from the missile during reentry. Consequently, if the target footprint axis is not roughly aligned with the flight azimuth, only a small portion of the target is effectively covered.

A ballistic missile has a relatively short flight time, and defenses against a ballistic missile attack are still less than completely effective, as proved in the Allied experience during the Gulf