



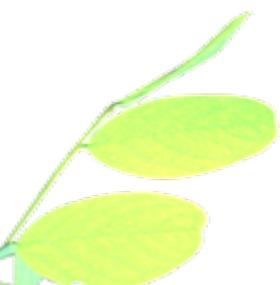
# Introduction to C++ (Season 1)

## Unit 4: Objects and Classes

第4单元：物以类聚－对象和类

### Section 5 : Object Pointer & Dynamic Object

第5节：对象指针与动态对象



# Accessing Object Members via Pointers (用指针访问对象成员)

- ❖ Object names cannot be changed once they are declared. (对象名声明后无法修改)
- ❖ However, object pointers can be assigned new object names(对象指针可以指向新的对象名)

```
1. Circle circle1;
2. Circle *pCircle = &circle1;

3. cout << "The radius is " << (*pCircle).radius << endl;
4. cout << "The area is " << (*pCircle).getArea() << endl;

5. (*pCircle).radius = 5.5;

6. cout << "The radius is " << pCircle->radius << endl;
7. cout << "The area is " << pCircle->getArea() << endl;
```

# Creating Dynamic Objects on Heap (在堆中创建对象)

- ❖ Object declared in a function is created in the stack.(在函数中声明的对象都在栈上创建); When the function returns, the object is destroyed (函数返回, 则对象被销毁).
- ❖ To retain the object, you may create it dynamically on the heap using the new operator. (为保留对象, 你可以用new运算符在堆上创建它)

```
ClassName *pObject = new ClassName(); //用无参构造函数创建对象
```

```
ClassName *pObject = new ClassName(arguments); //用有参构造函数创建对象
```

```
Circle *pCircle1 = new Circle(); //用无参构造函数创建对象
```

```
Circle *pCircle2 = new Circle(5.9); //用有参构造函数创建对象
```

```
//程序结束时, 动态对象会被销毁, 或者  
delete pObject; //用delete显式销毁
```